

MAG 208 WATER QUALITY
MANAGEMENT PLAN SMALL PLANT
REVIEW AND APPROVAL REPORT

FOR

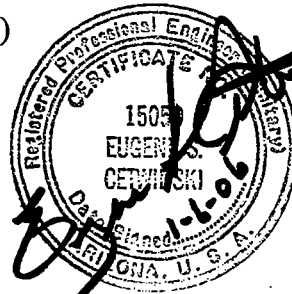
ESTATES AT LAKESIDE
PEORIA, ARIZONA

Prepared for:

LAKE PLEASANT SEWER COMPANY
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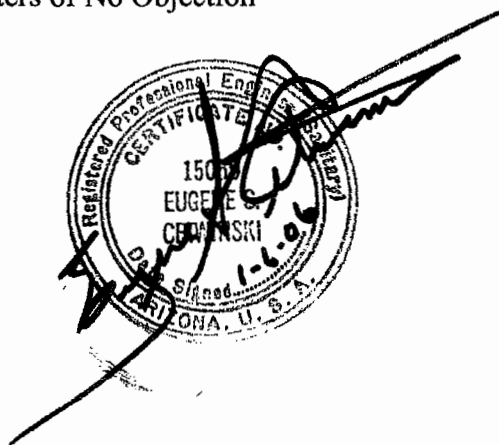


JANUARY, 2006
(REVISED)

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- Appendix A - Construction Plans (Partial)
- Appendix B - Analysis of Alternative Effluent Disposal Options
- Appendix C - Engineering Design Report (Synopsis)
- Appendix D - Hydro-Geologic Considerations (Summary from APP)
- Appendix E - Estimated Costs
- Appendix F - Financial Security
- Appendix G - Official Request / Letters of No Objection



PROJECT NARRATIVE

This project, "Estates at Lakeside WWTP", consists of an Activated Sludge Wastewater Treatment Plant to service the Estates at Lakeside subdivision in Peoria, Arizona. Phase I is located at the northwest corner of the intersection of Highway 74 (Carefree Highway) and Old Lake Pleasant Road. Phase II is located approximately 1/2 mile northwest of Phase I. The WWTP site is legally described as a portion of Section 29, Township 6 North, Range 1 East, of the Gila and Salt River Base and Meridian, Peoria, Arizona.

The subdivision will consist of 166 lots, approximately 1.0 acre in size. The basis for design is 166 lots @ 3.5 people/lot @ 100 gpd, or 58,100 gpd, nominally 60,000 gpd design flow in Phase I. Phase II is anticipated to be of equal size and will thus add an additional 60,000 gpd capacity. Therefore, the ultimate capacity of the WWTP is 120,00 gpd. The plant is designed to provide dual-train processes for Phase I and II. Phase II addition will "mirror" Phase I. Allowance has been made in the Site Plan to accommodate this expansion. Appendix A consists of abbreviated design plans. The ultimate disposal of the effluent from the WWTP was analyzed in a "cost effective analysis" of several alternates. See attached "Analysis of Alternative Effluent Disposal Options, WWTP" dated October 27, 2003 (Appendix B). The option of choice was the disposal of effluent via deep well injection into the aquifer. Appendix C contains a synopsis of the engineering design parameters.

Several alternative ultimate disposal systems for the effluent were considered. These were:

- Evaporation Ponds
- Deep Seepage Pits
- Pipe to Irrigation District
- Direct Discharge
- Re-Use On-Site
- Wetlands
- Deep Well Injection
- Combinations of Options

The recommended option was deep well injection of the effluent into the aquifer. This option proved to be the optimum solution for several reasons:

- Environmentally, the recharge of the aquifer with Class A+ effluent proved to be the best use of the effluent.
- Cost effectively, this option proved superior.
- Technically, the Class A+ effluent is easily utilized to the utmost in this option.
- All other options presented difficulties that were considerable.

ESCA has evaluated the data obtained from a detailed geologic study of the hydro-geologic regime in the area, along with conducting a drilling program consisting of four (4) wells drilled at the site. The data has indicated that this option is, indeed, quite viable at this location. A completed analysis has been submitted to ADWR for review and is available upon request. Appendix D contains the hydro-geologic considerations, as presented in the APP Application.

The WWTP is designed to double in capacity to 120,000 gpd, based upon the addition of a future phase of "Estates at Lakeside" located northwest of the first phase, consisting of approximately the same number of units. The attached figure indicates the ultimate service area for Phase I and Phase II of Estates at Lakeside WWTP. The design documents reflect this as Phase I and Phase II.

The addition of Phase II expansion to the WWTP will not modify the treatment process in any way. The design has accommodated adding a second process train duplicating the Phase I design exactly. The Site Plan has provided for adding additional tankage and equipment to reach the ultimate capacity of 120,000 gpd.

The basic WWTP process consists of:

- Bar Screen/Comminutor
- Flow Equalization
- Aeration/Anoxic Treatment
- Clarifiers
- Aerobic Sludge Digester

- Filtration
- Chlorination/Dechlorination
- Nitrification/Denitrification
- Noise/Odor Control
- Influent and Effluent Flow Measurement

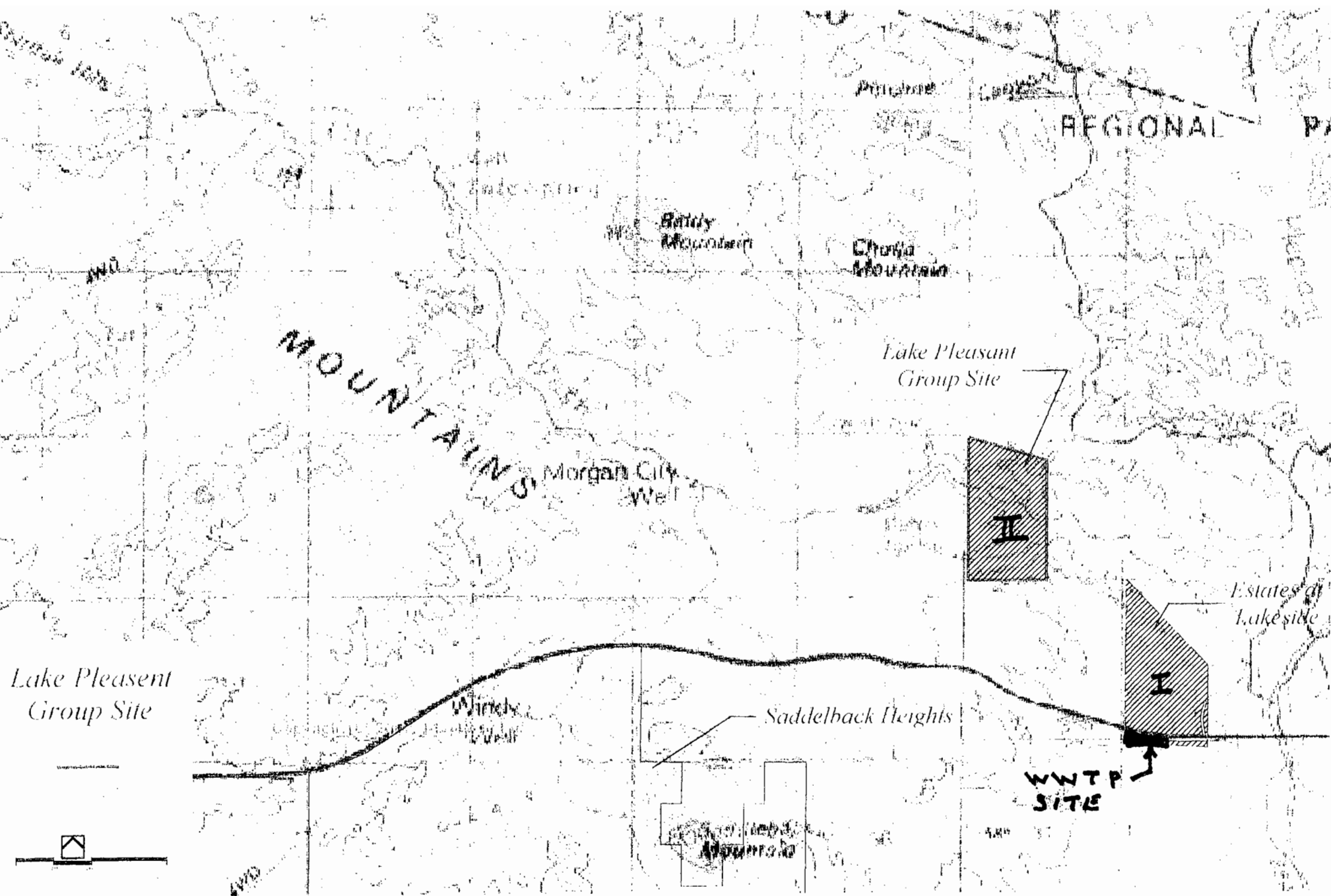
The Design Calculations are attached to this report (Appendix C). The WWTP site is located south of Arizona Highway 74, and the subdivision is located north of that highway. Therefore, a boring under the highway will be required to carry the force mains to the WWTP. This crossing is detailed in the design drawings (see Appendix A).

The subdivision is north of Highway 74 and is extremely vertically challenged, having four (4) major washes traversing the site. This creates the need for the utilization of lift stations in the collection system. In fact, six (6) sanitary sewer lift stations are required to economically carry the sewage to the WWTP. The system layout and lift station designs are included in the design plans attached in Appendix A. All six (6) lift stations will be equipped with emergency power and telemetering to the WWTP in case of an emergency. Phase II will also require lift station delivery to the WWTP site.

The influent to the WWTP is via Pump Station #1 (2-inch force main) and Pump Station #3 (4-inch force main). The effluent pump station (EPS) carries treated effluent to the injection well via a 4-inch force main. The primary injection Well "D" is located north of Highway 74, and the secondary injection Well "A" is located on the WWTP site. The point of compliance (P.O.C.) is Well "B"; Well "C" is a monitor well. The P.O.C. is down-gradient of the injection wells. Normal operation is to inject effluent into Well "D". The effluent piping is designed to be flexible enough to allow switchover to Well "A" when necessary.

The site of the WWTP is traversed by a wash carrying off-site drainage from southwest to northeast of the site, being carried off-site via an existing large culvert under the highway to the north. This drainage will not be altered by the design. The on-site retention calculations are depicted on the Drainage Plan in the construction documents in Appendix A. The attached WWTP drawings reveal that the off-site drainage is diverted around the facility and directed to the same drainage wash as

in the pre-construction condition. The on-site retention of storm water will accommodate the design storm required by MCESD.



AUTHORITY (MAG 208)

In accordance with Section 208 of the Clean Water Act, the Maricopa Association of Governments (MAG) is the designated Regional Water Quality Management Planning Agency. This Small Plant Review and Approval is initiated by the City of Peoria to MAG, because the City of Peoria is designated as the local government and MAG member agency for the location of this modification. The request for approval is submitted on behalf of Lake Pleasant Sewer Company, the development for which the approval will immediately benefit. This proposal is for a facility that is less than 2.0 million gallons per day (mgd) and will not discharge to a surface water of the United States; therefore, the proposed facility will be reviewed through the Small Plant Review and Approval process. The process requirements are outlined in Section 4.5.2 MAG Small Plant Process of the MAG 208 Water Quality Management Plan dated October 2002.

PLANT JUSTIFICATION

The Estates at Lakeside subdivision is located within the City of Peoria's wastewater service area. This WWTP is required due to the fact that the City of Peoria does not have trunk sewers or WWTP capacity to serve this area. The WWTP, both Phases I and II, are permanent facilities. They are intended to serve the "Estates at Lakeside" subdivision for the life of the facility, in perpetuity. No temporary, or short-term, service is contemplated. The hydro-geologic investigations have indicated that there are no soil or geologic limitations to the final effluent disposal option of deep well injection into the aquifer. In fact, there are major benefits to this option in the recharge of the aquifer in the area, in terms of water reuse and conservation.

The WWTP process design calls for removal of sludge periodically from the plant via private sludge hauler. No other option to sludge handling is considered necessary.

MASTER PLAN COMPATIBILITY

This request proposes a WWTP within the City of Peoria Wastewater Planning Area approximately one-half (1/2) mile west of Lake Pleasant Dam, along the Carefree Highway (Hwy. 74). It will serve a proposed subdivision of 166 lots (approximately 1.0 acres each) known as Estates at Lakeside, Phase I (with expansion capability to service Phase II, of equal size).

There is currently no sanitary sewer collection system or WWTP to service this area. After discussions with City staff, it became evident that the City of Peoria Capital Budget for the foreseeable future did not provide for service to this area. Thus, this WWTP did not present any incompatibility to the Master Plan. Therefore, the City of Peoria has requested that MAG initiate the 208 Small Plant Review and Approval process to add the proposed Estates at Lakeside WWTP to the MAG 208 Plan.

The proposed WWTP poses no negative impacts, physically or financially, to the City of Peoria. The only impact is a positive environmental impact, treating wastewater from this subdivision, utilizing state-of-the-art WWTP technology.

BENEFITS OF WWTP

The Engineering Design Report (Appendix C) contains the design information for the WWTP. It can be observed that the treatment process is state-of-the-art and will have the very positive benefit of treating the sanitary sewage from this subdivision to A+ quality effluent. The method of final disposal for the effluent from the WWTP is deep well injection into the aquifer. Technical investigations shown in Appendix D, Hydro-Geologic Considerations, verify the feasibility of this option. It reveals the extensive investigation performed to support our ADWR Application to dispose of the effluent in this manner. Thus, the benefit to the aquifer, by reuse and recharging the aquifer, is evident.

The City of Peoria Council approved (November 15, 2005) the agreement to own and operate the sewer collection system and the WWTP for Estates at Lakeside. The terms of that agreement require Lake Pleasant Sewer Company to construct the facilities and obtain this permit approval. At that time, the operation and ownership will be turned over to the City of Peoria. The City will be responsible for start-up and operation of the WWTP.

POTENTIAL PROBLEMS

The WWTP presents no potential problems to the environment. Since the construction is entirely privately funded, it presents no burden to the local municipality, financially. The terms of the purchase agreement reflect the fact that the City of Peoria accepts the responsibility of operation of the WWTP. The impact to the groundwater is completely positive, in that we will be recharging the aquifer locally. The WWTP is current state-of-the-art technology (BADCT), producing an A+ quality effluent, as defined by ADEQ guidelines.

The capital and operational costs are unavoidable since there are no WWTP facilities within the Peoria service area to accommodate service to the project.

Since the ultimate disposal of the effluent is via deep well injection into the aquifer, the WWTP has no impact on surface waters.

The WWTP design will be operated under the ADEQ guidelines of the APP issued for the facility, therefore it will meet all appropriate State regulations.

The City of Peoria has accepted the responsibility of start-up and operation of the WWTP.

ADEQ regularly inspects approved WWTP operations, under the APP process, and therefore assures proper O&M of permitted WWTP's.

FINANCIAL AND OPERATIONAL CONSIDERATIONS

The construction of the WWTP will be privately funded by the developer, DLGC II, LLC. The Lake Pleasant Sewer Company will finance construction of the WWTP. The purchase agreement approved by the City of Peoria (City Council meeting November 15, 2005) reflects the fact that the City will accept responsibility for start-up and operation of the WWTP. The financial security requirements are attached in Appendix F.

OFFICIAL REQUEST / LETTER OF NO OBJECTION

The Estates at Lakeside WWTP is located within the City of Peoria service area. Therefore, the City of Peoria has initiated the Small Plant Review and Approval Process (Appendix G).

Appendix G includes the City of Peoria's letter requesting that MAG initiate the 208 Small Plant Review and Approval Process to add the proposed Estates at Lakeside WWTP to the MAG 208 Plan, as well as the Letters of "No Objection" from the City of Phoenix and Maricopa County Environmental Services Department (MCESD). This Small Plant Review and Approval request satisfies the requirements of the MAG 208 Water Management Plan process for small plant reviews.

APPENDIX A

CONSTRUCTION PLANS (PARTIAL)

SHEET INDEX

- 1 COVER SHEET
- 2 GENERAL CONSTRUCTION NOTES
- 3 SITE DETAILS
- 4 SITE PLAN & CONSTRUCTION NOTES
- 5 SITE GRADING & DRAINAGE PLAN
- 6 SITE CROSS-SECTIONS
- 7 BLOWER BUILDING PLAN
- 8 TREATED EFFLUENT HIGHWAY CROSSING PLAN AND PROFILE/INJECTION WELL
- 9 SEWER LIFT STATION SITES

- 254-1 WWTP FLOW DIAGRAM
254-2 WWTP HYDRAULIC PROFILE
254-3 PLAN VIEW
254-4 SECTIONS
254-5 DETAILS - WWTP
254-6 BASE SLAB LAYOUTS AND DETAILS
254-7 SK-10 BASE SLAB SECTIONS & DETAILS
254-8 SINGLE LINE WIRING DIAGRAM
254-9 LIFT STATIONS AND SECTIONS

- E-1 ELECTRICAL COVER SHEET
E-2 AREA LIGHT & RECEPTACLE PLAN
E-3 ELECTRIC PLAN
E-4 ELECTRIC PLAN
E-5 ELECTRIC SINGLE LINE
E-6 ELECTRIC SINGLE LINE
E-7 ELECTRIC SINGLE LINE
E-8 ELECTRICAL SCHEMATICS & DETAILS
E-9 ELECTRICAL NETWORK DIAGRAM

LIFT STATION ELECTRICAL PLANS:

- E-1 ELECTRICAL COVER SHEET
E2-19 EACH LIFT STATION #1-6 HAS THE FOLLOWING ADDITIONAL SHEETS:
- ELECTRIC PLAN
ELECTRIC SINGLE LINE & DETAILS
ELECTRICAL SCHEDULES
- E20 ELECTRICAL SINGLE LINE WIRING DIAGRAM PUMP STATIONS 1,2,4,5, AND 6.
E21 ELECTRICAL SINGLE LINE WIRING DIAGRAM PUMP STATION 3.

FLOOD ZONE

THE SITE IS DESIGNATED BY FEMA F.I.R.M. PANEL NO. 04013-C-0735-G AS ZONE "X"; AREA OF MINIMAL FLOODING DURING THE 100-YR STORM EVENT.

BASIS OF BEARING

THE BASIS OF BEARING IS A LINE THAT BEARS N 00° 08' 58" E WHICH IS THE LINE BETWEEN THE SOUTH-WEST CORNER AND THE WEST QUARTER CORNER OF SECTION 29 OF TOWNSHIP 6 NORTH, RANGE 1 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA.

BASIS OF ELEVATION

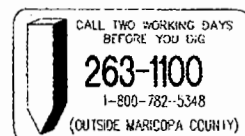
BRASS CAP IN HEADWALL AT SOUTH SIDE OF INTERSECTION OF STATE ROUTE 74 AND LAKE PLEASANT ROAD. ELEV. = 1442.12 A.DOT DATUM

GLOBAL COORDINATES:

THE COORDINATES AT THE SOUTHWEST CORNER OF SECTION 29:
Latitude N 33° 49' 40"
Longitude W 112° 17' 24"

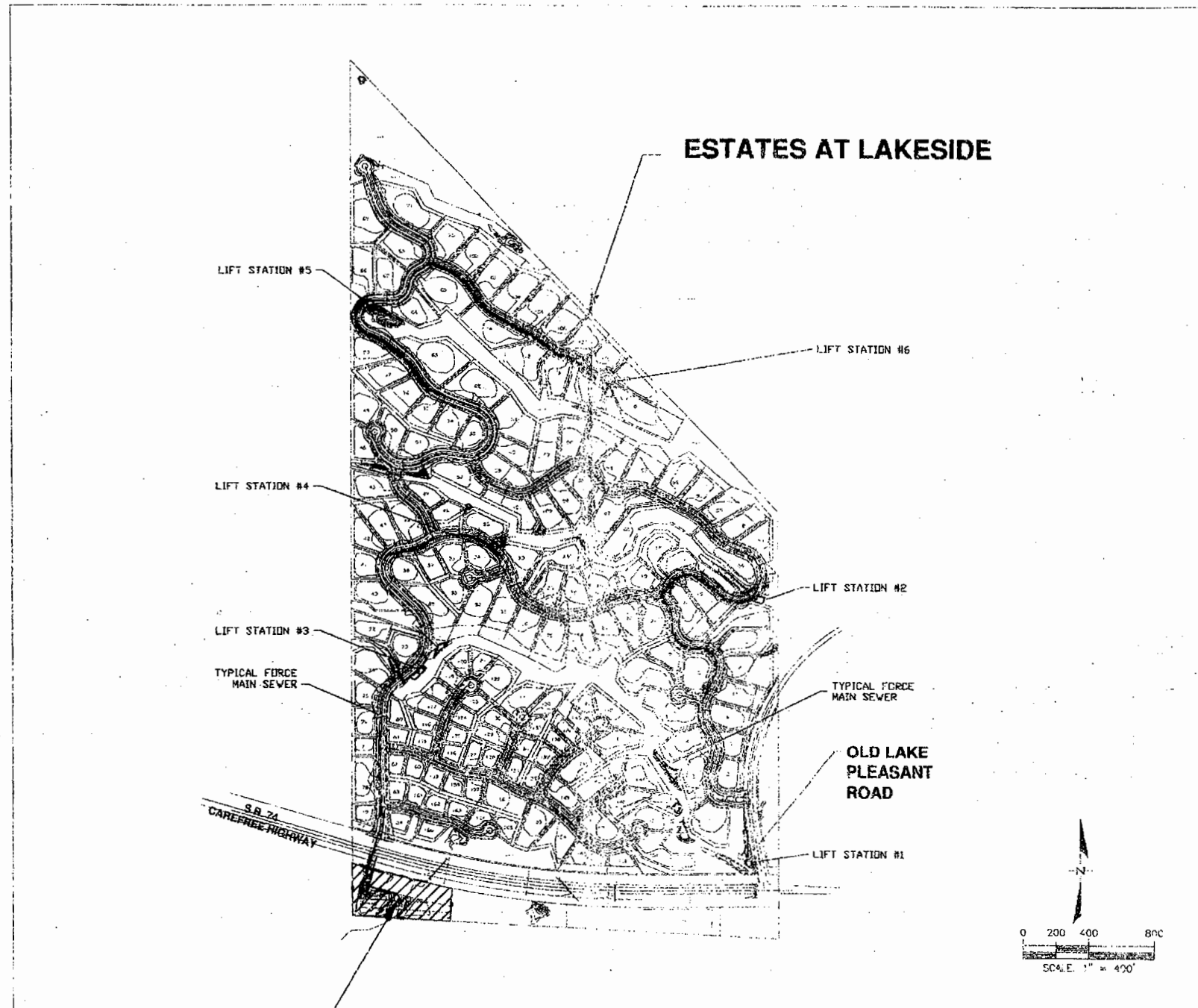
UTILITY COMPANY	SUBMITTED TO	REVIEWED BY	CLEARED BY
ARIZONA PUBLIC SERVICE			
AT&T			
COX CABLE			
EL PASO NATURAL GAS			
CITY OF PEORIA			
SOUTHWEST GAS			
OTHER			

*AGENCIES ALSO REQUIRING PERMITS WHEN INVOLVED ARE: MARICOPA COUNTY ENVIRONMENTAL SERVICES DIVISION, MARICOPA COUNTY FLOOD CONTROL DISTRICT, MARICOPA COUNTY HIGHWAY DEPT., ARIZONA DEPT. OF TRANSPORTATION, & ARIZONA DEPT. OF ENVIRONMENTAL QUALITY.



ESTATES AT LAKESIDE WASTEWATER TREATMENT PLANT

A PORTION OF SECTION 29, TOWNSHIP 6 NORTH, RANGE 1 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, PEORIA, ARIZONA



PROPOSED WWTP SITE
PART OF TRACT "E"

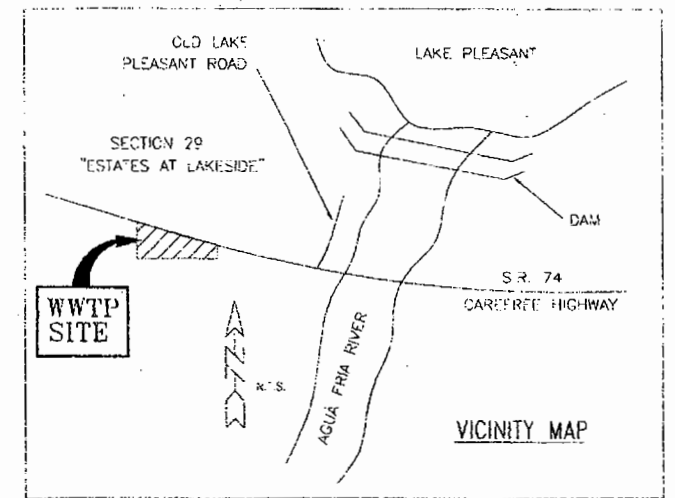
SITE LOCATION MAP

AS-BUILT CERTIFICATION:

I HEREBY CERTIFY THAT THE "RECORD DRAWINGS" AND MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY FULL AND/OR PARTTIME SUPERVISION AND ARE CORRECT AND TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF

REGISTERED CIVIL ENGINEER DATE

AZ REGISTRATION NUMBER



LEGAL DESCRIPTION

The West 800 feet of the following described property:

A parcel of land located in the Southwest Quarter of Section 29, Township 6 North, Range 1 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona, being more fully described as follows:

Beginning at the South quarter corner of said Section 29;

Thence North 88 degrees 55 minutes 59 seconds West, along the South line of said Section 29, 2514.86 feet to the Southwest corner of said Section 29;

Thence North 00 degrees 03 minutes 34 seconds West, along the West line of said Section 29, 318.20 feet to a point on the South right-of-way line of State Route 74;

Thence South 73 degrees 44 minutes 57 seconds East, along said South right-of-way line, 127.61 feet;

Thence along said South right-of-way line and along the arc of a non-tangent curve to the left, having a radial distance of 6629.53 feet and a central angle of 16 degrees 28 minutes 29 seconds, 1618.84 feet to a point on non-tangency;

Thence North 89 degrees 50 minutes 33 seconds East, along said South right-of-way line, 835.12 feet to a point on the North-South mid-section line of said Section 29;

Thence South 00 degrees 02 minutes 05 seconds West, leaving said South right-of-way line, 191.04 feet to the point of beginning.

Except an undivided 1/16 of all oil, gas and other hydrocarbon substances, coal, stone, metals, minerals, fossils and fertilizer of every name and description and except all uranium, thorium or any other material which is or may be determined by the laws of the State of Arizona, the United States of America or decisions of courts to be particularly essential to the production of fissionable materials, whether or not of commercial value, as reserved in Section 37-231, Arizona Revised Statutes and Patent to said land recorded in Document No. 84-206716, Maricopa County Records. (Approximately 2.77 Acres)

OWNER

LAKE PLEASANT SEWER COMPANY
2390 E. CAMELBACK ROAD, SUITE 310
PHOENIX, ARIZONA 85016
Ph: (480) 451-6961
CONTACT: CHARLES CIVER

SANITARY ENGINEER

ESCA ENVIRONMENTAL, INC.
7401 W. ARROWHEAD CLUBHOUSE DRIVE
UNIT 2088
GLENDALE, ARIZONA 85308
PHONE: (623) 566-6663

APPROVAL *Charles Civer* DATE *Feb 1, 2005*
OWNER, LAKE PLEASANT SEWER COMPANY

APPROVAL CITY OF PEORIA
ENGINEERING DEPARTMENT DATE

APPROVAL ARIZONA DEPARTMENT OF
ENVIRONMENTAL QUALITY DATE

APPROVAL MARICOPA COUNTY
ENVIRONMENTAL HEALTH SERVICES DATE

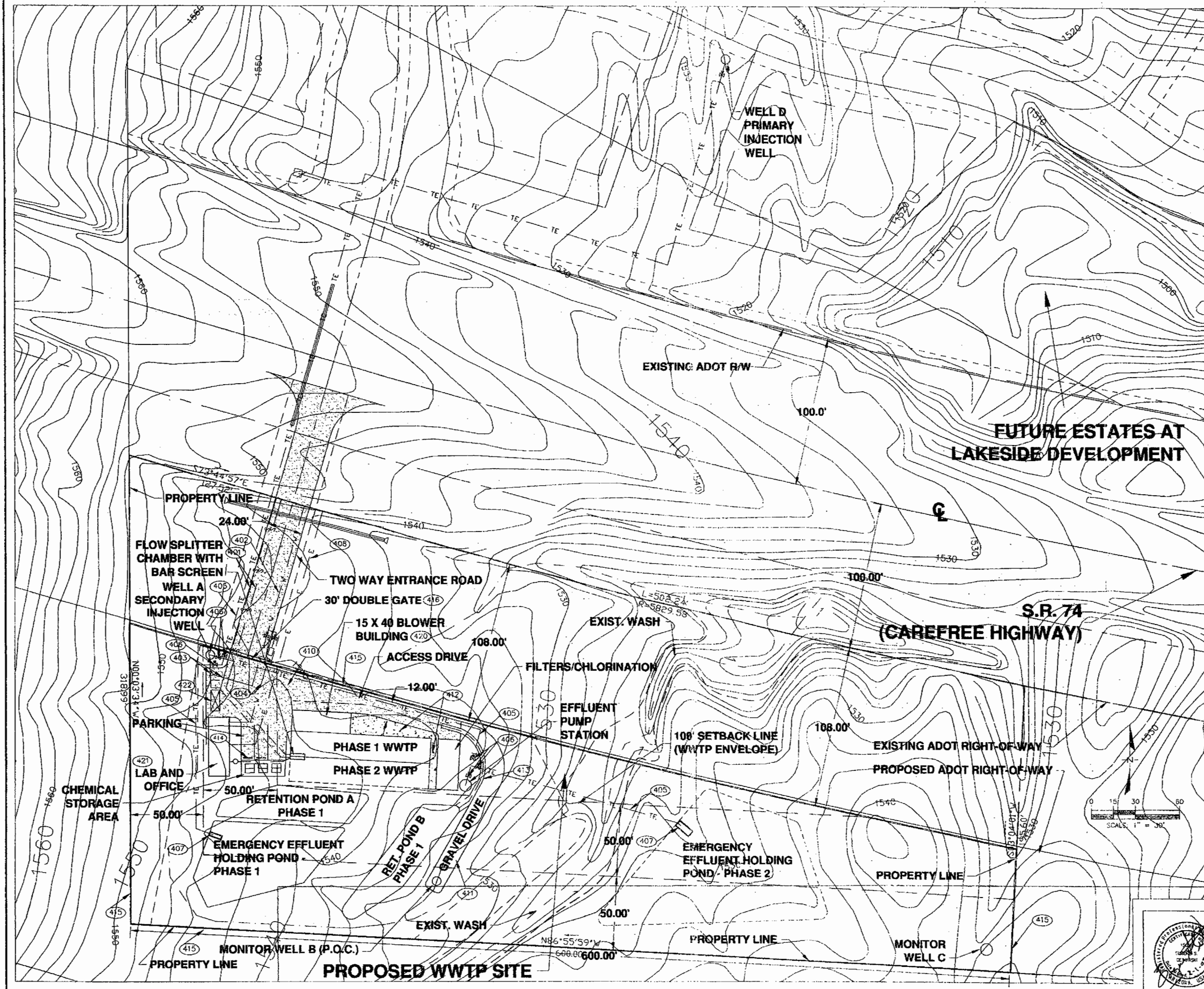
COVER SHEET

ESTATES AT LAKESIDE
WASTEWATER TREATMENT PLANT
PEORIA, ARIZONA

ESCA ENVIRONMENTAL, INC.

7401 W. ARROWHEAD CLUBHOUSE DRIVE, UNIT 2088
GLENDALE, AZ 85308 PH: (623) 566-6663

DESIGN	DRAWN	CHECK	DATE	JOB	SHEET
ESL	SR	ESC	02/01/05	0302B	1 OF 48

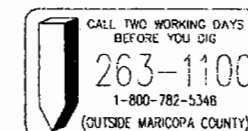


CONSTRUCTION NOTES

- 400. ALL GRADING AND DRAINAGE CONSTRUCTION NOTES ARE GIVEN SHEET 5. ALL WWTP EQUIPMENT TO BE INSTALLED PER MANHOLE PLANS.
- 401. INSTALL 2" AND 4" SCH 40 PVC FORCE MAIN SEWER PIPING AS SHOWN. CONNECT TO EXISTING FORCE MAIN STUBS AND TO INLET PIPING OF WWTP.
- 402. INSTALL 18" DUCTILE IRON CLASS 350 WATERLINE EXTENSION AND GATE VALVES. CONNECT TO EXISTING STUB AND VALVE. PIPING MUST MEET M.A.G. SPEC. 750 FOR PIPE WITH BITUMINOUS LINING/COATING AND SHALL BE POLY WRAPPED PER M.A.G. STD. SPEC. 850. VALVES SHALL BE INSTALLED PER M.A.G. STD. DTL. 391-1. INSTALL THRUST BLOCKS PER M.A.G. DETAIL 340 OR "MEGA-LINK" JOINT RESTRAINT.
- 403. INSTALL 6" DUCTILE IRON PIPING AND FIVE HYDRANT PER PEORIA DETAIL 360.
- 404. INSTALL 2" COPPER WATER SERVICE LINE, 2" GATE VALVE, AND MAG STD. 320 METER BOX PER PEORIA DETAIL 325. COORDINATE INSTALLATION OF WATER METER BY PEORIA. INSTALL REDUCED PRESSURE BACKFLOW PREVENTION DEVICE AND INSTALL PIPING FROM METER TO BUILDING.
- 405. INSTALL 4" CLASS 250 DUL TREATED EFFLUENT LINE TO INJECTION WELLS, INCLUDING ALL FITTINGS. MIN. COVER 3.0'.
- 406. INSTALL 4" GATE VALVE, BOX, AND COVER.
- 407. INSTALL OUTLET STRUCTURE FOR EMERGENCY TREATED EFFLUENT LINE DISCHARGE.
- 408. COORDINATE INSTALLATION OF ELECTRICAL SUPPLY AND COMMUNICATIONS LINES AS PER ELECTRICAL PLANS.
- 410. CONSTRUCT ASPHALT PAVEMENT (3" A.C. OR 5" A.B.C.) PER CONTROL POINTS SHOWN ON SHEET 5 AND IN ACCORDANCE WITH TYPICAL PAVEMENT SECTION DETAIL ON SHEET 2.
- 411. CONSTRUCT WELL ACCESS DRIVE (4" GRAVEL ON 12" COMPACTED NATIVE SOIL) PER AS SHOWN AND PER DETAIL ON SHEET 3.
- 412. CONSTRUCT 5" SHOTCRETE EMBANKMENT STABILIZATION AS SHOWN ON PLANS. TROWELED CONTROL JOINTS SHALL BE LOCATED AT THE EDGES AND SPACED AT 10'.
- 413. CONSTRUCT 3" WIDE CONCRETE VALLEY GUTTER PER CONTROL POINTS GIVEN ON SHEET 5 AND MAG STD. DTL. 240.
- 414. INSTALL 6" CONCRETE CURB BUMPERS MINIMUM 2' FROM EDGE OF PAVEMENT.
- 415. CONSTRUCT 18" MASONRY WALLS AROUND THE PERIMETER OF THE SITE AS SHOWN. STEP AS NECESSARY TO FOLLOW FINISHED GRADE.
- 416. CONSTRUCT 8' X 30' DOUBLE GATE AT WWTP ENTRANCE.
- 420. CONSTRUCT 14' X 40' PREFABRICATED METAL BLOWER/EQUIPMENT BUILDING FOR AS PER SHEETS 16-18 AND FOUNDATION DETAILS ON SHEET 3.
- 421. INSTALL 14' X 40' OFFICE AND LABORATORY BUILDING.
- 422. INSTALL EMERGENCY GENERATOR AND CONNECT AS PER ELECTRICAL PLANS.

LEGEND

PHASE 1 (60,000 GPD) _____
PHASE 2 (120,000 GPD) - - - - -



AS-BUILT CERTIFICATION:

I HEREBY CERTIFY THAT THE "RECORD DRAWINGS" AND MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY FULL AND/OR PARTTIME SUPERVISION AND ARE CORRECT AND TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF

REGISTERED CIVIL ENGINEER _____ DATE _____

AZ REGISTRATION NUMBER _____

SITE PLAN & CONSTRUCTION NOTES

ESTATES AT LAKESIDE
WASTEWATER TREATMENT PLANT
PEORIA, ARIZONA

ESCA ENVIRONMENTAL, INC.

7401 W. ARROWHEAD CLUBHOUSE DRIVE, UNIT 2088
GLENDALE, AZ 85308 PH (623) 566-6663

DESIGN	DRAWN	CHECK	DATE	JOB	SHEET
ESC	SRL	ESC	02/01/05	03028	4 OF 48

PEORIA GRADING AND DRAINAGE NOTES

- DEVELOPMENT SERVICES DEPARTMENT'S FIELD INSPECTION GROUP SHALL BE NOTIFIED 48 HOURS BEFORE ANY ON-SITE AND/OR OFF-SITE CONSTRUCTION BEGINS.
- MINIMUM FINISH FLOOR ELEVATIONS SHOWN ARE SAFE FROM THE 100 YEAR 2-HOUR FLOOD OR PER MINIMUM SPECIFIED IN THE MARICOPA COUNTY FLOOD CONTROL DISTRICT UNIFORM DRAINAGE STANDARDS, WHICHEVER IS GREATER.
- AN APPROVED GRADING AND DRAINAGE PLAN SHALL BE ON THE JOB SITE AT ALL TIMES. DEVIATIONS FROM THE PLAN MUST BE PRECEDED BY AN APPROVED PLAN REVISION.
- GRADING AND DRAINAGE PLAN APPROVAL INCLUDES THE CONSTRUCTION OF ALL SURFACE IMPROVEMENTS SHOWN ON THE APPROVED PLAN, INCLUDING, BUT NOT LIMITED TO, RETENTION AREAS, SEDIMENTATION BASINS, AND/OR OTHER DRAINAGE FACILITIES, DRAINAGE PATTERNS, WALLS, CURBS, ASPHALT PAVEMENT, AND BUILDING FLOOR ELEVATIONS.
- CONTRACTOR SHALL PROVIDE LEVEL BOTTOM IN ALL RETENTION BASINS AT ELEVATIONS SHOWN ON THE PLANS. SLOPE PROTECTION SHALL BE APPLIED TO PREVENT EROSION.
- CONTRACTOR IS RESPONSIBLE FOR LOCATING AND CONFIRMING DEPTHS OF ALL THE EXISTING UTILITY LINES WITHIN PROPOSED RETENTION BASIN AREAS. IF THE BASIN CANNOT BE CONSTRUCTED PER PLAN BECAUSE OF CONFLICTS, THE CONTRACTOR SHOULD DISCUSS MODIFICATION OF BASIN CONFIGURATION WITH THE CITY INSPECTOR TO DETERMINE IF A PLAN REVISION OR A FIELD CHANGE IS REQUIRED.
- ALL DRAINAGE PROTECTIVE DEVICES SUCH AS SWALES, INTERCEPTOR DITCHES, PIPES, PROTECTIVE BERMS, BARRIER WALLS, CONCRETE CHANNELS, OR OTHER MEASURES DESIGNED TO PROTECT ADJACENT BUILDINGS OR PROPERTY FROM STORM RUNOFF MUST BE COMPLETED PRIOR TO BUILDING CONSTRUCTION.
- RETENTION BASIN SIDE SLOPES SHALL BE A MAXIMUM OF 4:1 UNLESS APPROVAL IS RECEIVED FROM THE PLAN REVIEWER FOR A STEEPER SLOPE.
- ALL KNOWN EXISTING UNDERGROUND UTILITIES WITHIN PROPOSED RETENTION AREAS HAVE BEEN DESIGNED TO MAINTAIN A MINIMUM 15" OF COVER OVER CITY OWNED UTILITY LINES AND THE MINIMUM SPECIFIED BY OTHER UTILITY OWNERS.
- CERTIFICATE OF OCCUPANCY (C. OF O.) AND/OR FINAL ELECTRICAL CLEARANCE FOR ANY BUILDING IS DENIED UNTIL ALL GRADING AND DRAINAGE IMPROVEMENTS ARE COMPLETED.
- DAMAGED AND/OR DISPLACED CONCRETE CURB, GUTTER, SIDEWALK, OR DRIVEWAY SLAB THAT IS WITHIN THE RIGHT-OF-WAY SHALL BE REPAIRED OR REPLACED, AS NOTED BY CITY INSPECTORS, BEFORE FINAL ACCEPTANCE OF THE WORK.
- THE ENGINEERING DESIGN ON THESE PLANS ARE ONLY APPROVED BY THE CITY IN SCOPE, AND NOT IN DETAIL. CONSTRUCTION QUANTITIES ON THESE PLANS ARE NOT VERIFIED BY THE CITY. APPROVAL OF THESE PLANS ARE FOR PERMIT PURPOSES ONLY AND SHALL NOT PREVENT THE CITY FROM REQUIRING CORRECTION OF ERRORS IN THE PLANS WHERE SUCH ERRORS ARE SUBSEQUENTLY FOUND TO BE IN VIOLATION OF ANY LAW, ORDINANCE, HEALTH, SAFETY, OR OTHER DESIGN ISSUES.
- CONSTRUCTION WITHIN THE RIGHT-OF-WAY SHALL CONFORM TO THE LATEST APPLICABLE MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND DETAILS AND THE LATEST CITY OF PEORIA SUPPLEMENTALS TO THE MAG UNIFORM STANDARD SPECIFICATIONS AND DETAILS.
- PLAN APPROVAL IS VALID FOR TWELVE (12) MONTHS. IF APPROVAL EXPIRES, THE PLANS MUST BE RESUBMITTED FOR CITY UPDATE REVIEW AND APPROVAL.
- COMPACTION SHALL COMPLY WITH M.A.G. SECTION 601.
- OBSTRUCTIONS TO PROPOSED IMPROVEMENTS IN THE RIGHT-OF-WAY SHALL BE REMOVED OR RELOCATED BEFORE BEGINNING CONSTRUCTION OF THE PROPOSED IMPROVEMENTS.

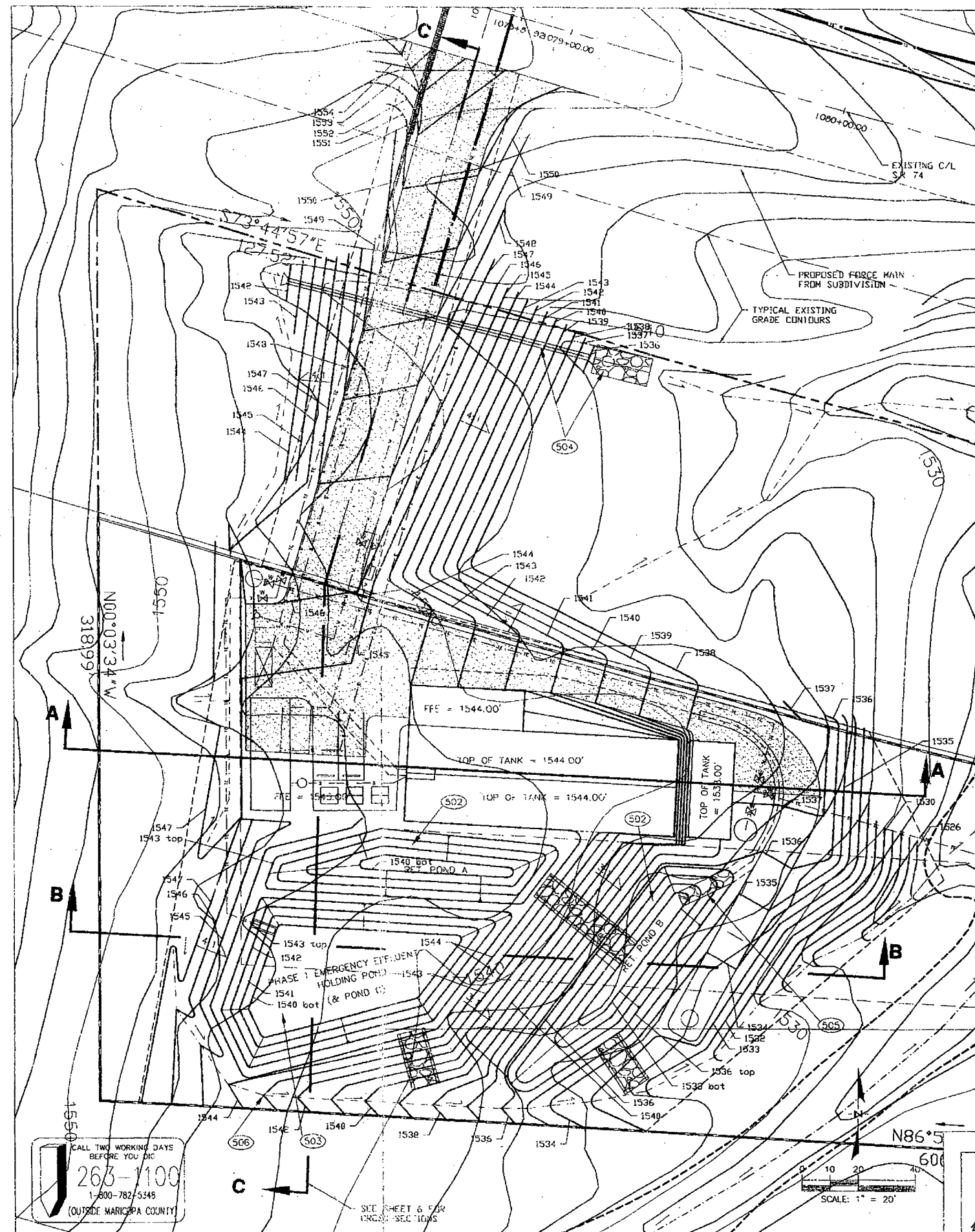
RETENTION CALCULATIONS

COEFF. C = 0.95
VOLUME REQUIRED: (100-yr, 2-hr) = C(P/12)A
= 0.95 x 2.6"/12 x A
V(AREA A) = 1630 CF
V(AREA B) = 2956 CF
V(AREA C) = 1564 CF

VOLUME PROVIDED:
POND A = 3352 CF
POND B = 3694 CF
POND C = 3498 CF
TOTAL = 10544 CF

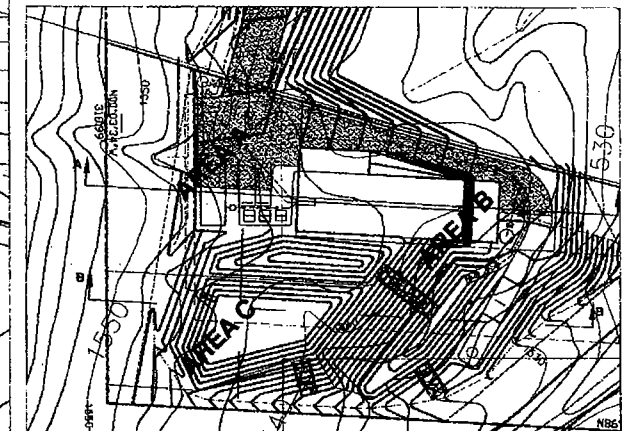
NOTE: AREA C - DRAINS INTO AND IS RETAINED BY EMERGENCY EFFLUENT HOLDING POND.

LEGEND FOR GRADING NOTES:	
FG	FINISHED GRADE
FL	FLOWLINE
TBOC	TOP BACK OF CURB
TOW	TOP OF WALL
TOS	TOP OF SIDEWALK
EG	EXISTING GRADE
RG	ROUGH GRADE
CC	CURB CUT
CT	CURB TERMINATION
GB	GRADE BREAK
DF	DRAINAGE FLOW DIRECTION
CO	SEWER CLEANOUT



CONSTRUCTION NOTES - PRIVATE IMPROVEMENTS

- 500 CLEAR AND GRUB IN ACCORDANCE WITH M.A.G. SPEC. 201
- 501 COMPLETE EARTHWORK IN ACCORDANCE WITH M.A.G. SPEC. 210 & 211. MASS GRADING TO BE PER CROSS SECTIONS ON SHEET 6.
- 502 CONSTRUCT RETENTION POND A & B PER CONTOURS SHOWN ON PLANS AND IN ACCORDANCE WITH M.A.G. STD. SPEC. 210 AND 211. INSTALL POND OVERFLOW RIPRAP SPILLWAY PER DETAIL ON SHEET 3.
- 503 CONSTRUCT THE PHASE 1 EMERGENCY EFFLUENT HOLDING POND PER CONTOURS SHOWN ON PLANS AND IN ACCORDANCE WITH M.A.G. STD. SPEC. 210 AND 211. INSTALL POND OVERFLOW RIPRAP SPILLWAY PER DETAIL ON SHEET 3.
- 504 INSTALL 24" HDPE CULVERT UNDER ENTRANCE ROADWAY AS PER INVERTS GIVEN AND CROSS SECTIONS ON SHEET 6. BOTH ENDS OF CULVERT TO HAVE STEEL FLARED END SECTIONS. DOWNSTREAM END TO HAVE 16IN. 10' WIDE BY 20' LONG RIP RAP AREA FROM NATIVE STONE AS SHOWN AND TO MEET M.A.G. STD. DET. 555.
- 505 CONSTRUCT GRADED DIVERSION DITCH A AND BERMS/STALES PER ELEVATIONS GIVEN ON THIS SHEET AND DETAIL GIVEN ON SHEET 3.
- 506 INSTALL 4" WIDE BY 12' LONG RIP RAP AREA FROM NATIVE STONE AS SHOWN AND TO MEET M.A.G. STD. DET. 555.



DRAINAGE AREA BOUNDARIES

I HEREBY CERTIFY THAT THE "RECORD DRAWINGS" AND MEASUREMENTS AS SHOWN HEREON WERE MADE UNDER MY FULL AND/OR PARTTIME SUPERVISION AND ARE CORRECT AND TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF

REGISTERED CIVIL ENGINEER DATE

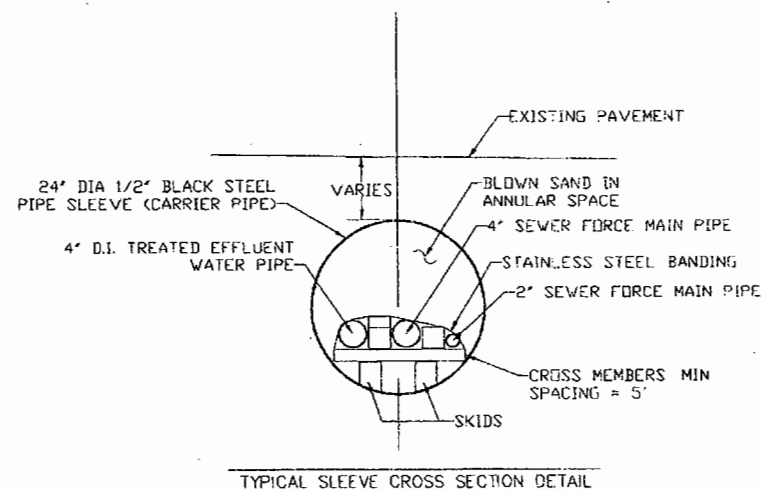
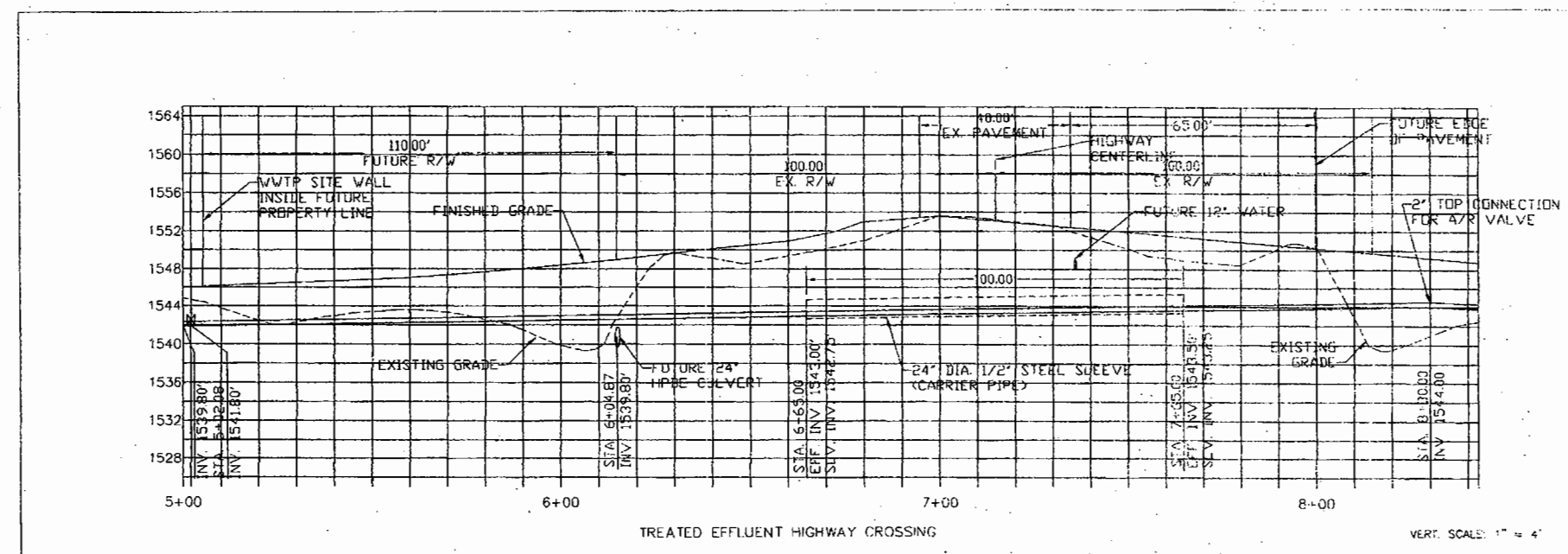
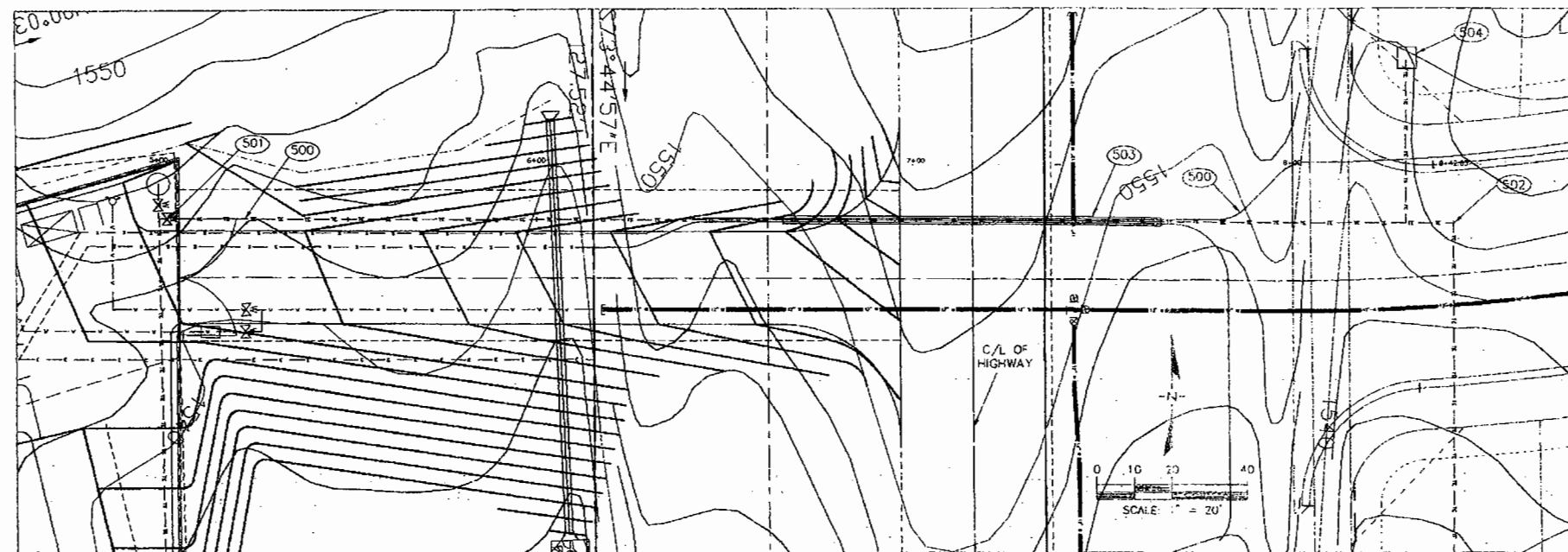
AZ REGISTRATION NUMBER

SITE GRADING & DRAINAGE PLAN
ESTATES AT LAKESIDE
WASTEWATER TREATMENT PLANT
PEORIA, ARIZONA

ESCA ENVIRONMENTAL, INC.

7401 W. ARROWHEAD CLUBHOUSE DRIVE, UNIT 2088
GLENDALE, AZ 85308 PH (623) 566-6653

DESIGN	DRAWN	CHECK	DATE	JOB	SHEET
ESC	SRI	ESC	02/01/05	03028	5 OF 48

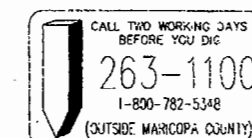


AS-BUILT CERTIFICATION:

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REGISTERED CIVIL ENGINEER DATE

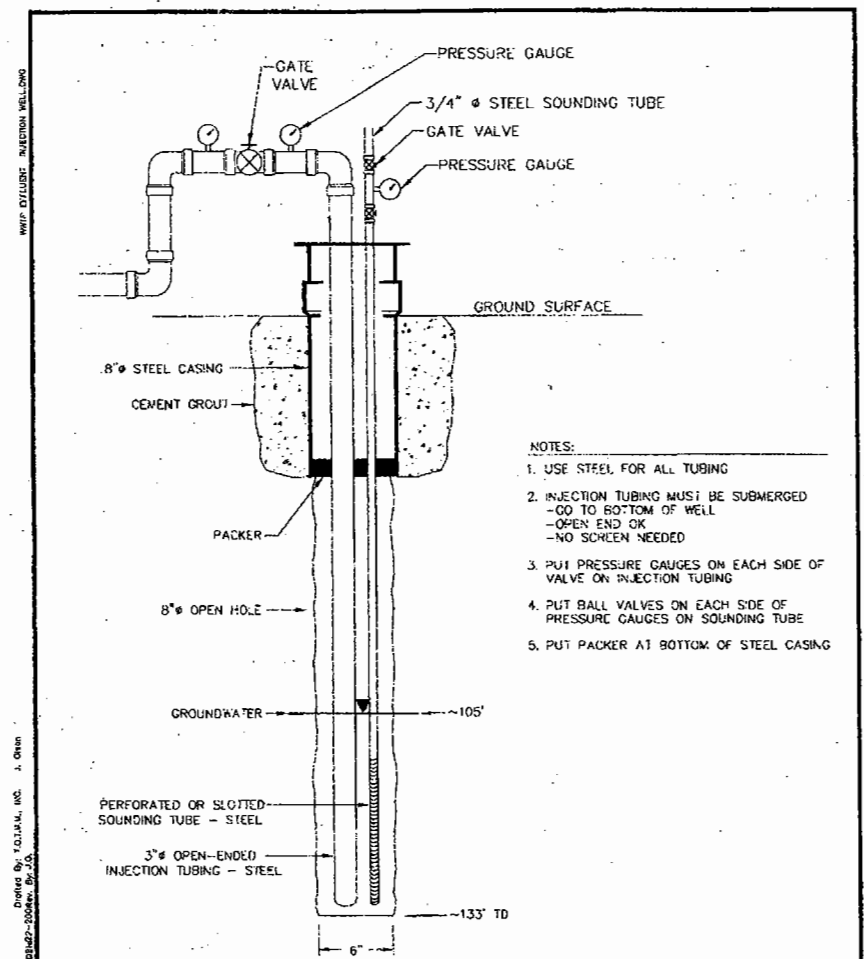
AZ REGISTRATION NUMBER



TREATED EFFLUENT HIGHWAY CROSSING PLAN & PROFILE/INJECTION WELL					
ESTATES AT LAKESIDE WASTEWATER TREATMENT PLANT PEORIA, ARIZONA					
ESCA ENVIRONMENTAL, INC.					
7401 W. ARROWHEAD CLUBHOUSE DRIVE, UNIT 2088 GLENDALE, AZ 85308 PH (623) 566-6663					
DESIGN	DRAWN	CHECK	DATE	JOB	SHEET
ESC	SRL	ESC	02/01/05	03028	8 OF 48

CONSTRUCTION NOTES -- PRIVATE IMPROVEMENTS

- 500 INSTALL 4" DIA. WATER PIPING FOR TREATED EFFLUENT PER MAG SPEC SECTION 610. MAX COVER 3.0' ALL PIPE TO HAVE MEDIA LOG RESTRAINED JOINTS AND POLYWRAP.
- 501 INSTALL 4" GATE VALVE, BOX, AND COVER PER MAG STD 391-1&2.
- 502 INSTALL 4" DIA. 90° ELBOW
- 503 INSTALL 24" DIA. 1/2" BLACK STEEL SLEEVE PER ADOPT STANDARDS AND DETAILS. THIS SHEET, ALL TREATED EFFLUENT AND WASTEWATER PIPING TO BE INSTALLED AND SLEEVE WITH 4" DIA. 10000 TURNERS AND STAINLESS STEEL BANDING OR EQUAL. ANNUAL SPACE OF SLEEVE TO BE FILLED WITH BLOWN SAND AFTER PIPES ARE INSTALLED AND TESTED. SLEEVE TO HAVE 2" VENT PIPES AND CONCRETE PLUGS ON BOTH ENDS. VENT PIPES TO BE ADJUSTED TO GRADE, WITH ENDS CONCRETE IN STAINLESS STEEL MESH AND WATER VALVE BOX AND COVER PER MAG 391.
- 504 INSTALL 2" CONSUMPTION AIR/VACUUM RELIEF VALVE PER FLORIDA STANDARD DETAILS. VALVE TO BE PLACED IN CONCRETE BOX WITH COVER. PIPING FROM CONNECTION AT TOP OF WATER PIPE TO VALVE BOX SHALL BE STAINLESS STEEL AND SHALL HAVE A 2" GATE VALVE AT THE WATER PIPE CONNECTION. PIPE TO BE SLOPED MIN. 2%.

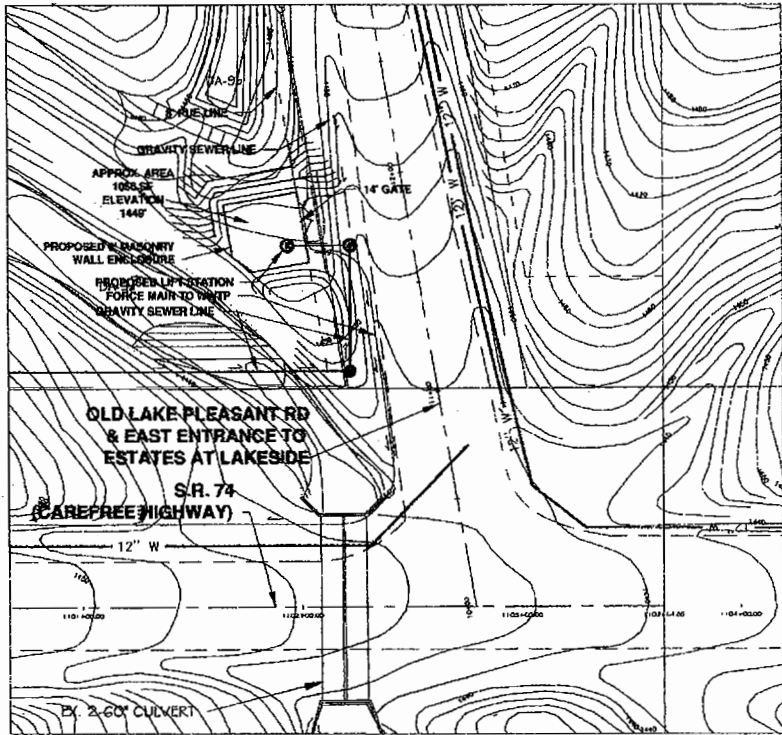


- NOTES:
- USE STEEL FOR ALL TUBING
 - INJECTION TUBING MUST BE SUBMERGED - GO TO BOTTOM OF WELL - OPEN END OK - NO SCREEN NEEDED
 - PUT PRESSURE GAUGES ON EACH SIDE OF VALVE ON INJECTION TUBING
 - PUT BALL VALVES ON EACH SIDE OF PRESSURE GAUGES ON SOUNDING TUBE
 - PUT PACKER AT BOTTOM OF STEEL CASING

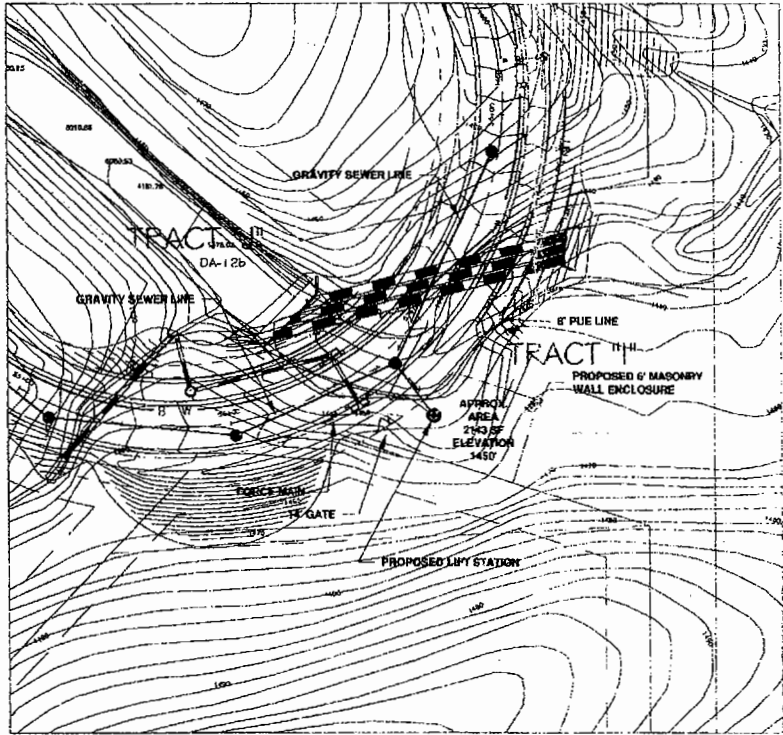
SOURCE: SPEYER & ASSOCIATES, P.C., FIELD NOTES, 2004		NOT TO SCALE	
SPEYER & ASSOCIATES, P.C.		WWTP EFFLUENT INJECTION WELL UNDERGROUND STORAGE FACILITY PERMIT ESTATES AT LAKESIDE LAKE PLEASANT, ARIZONA	
PREPARED BY: S. SPEYER	DATE: 12/2004	APPROVED BY: S. SPEYER	FIGURE NO.: DP
PROJECT NO.: 2004.019.01.04			

WELLS 'A' AND 'D' (EXISTING BORINGS)

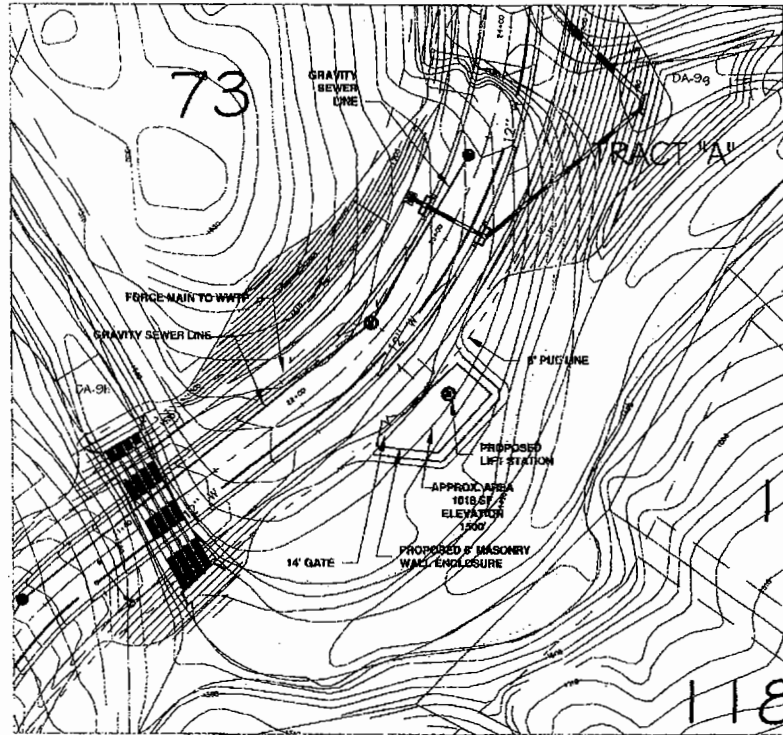
SITE PLANS - SEWER LIFT STATIONS #1-6



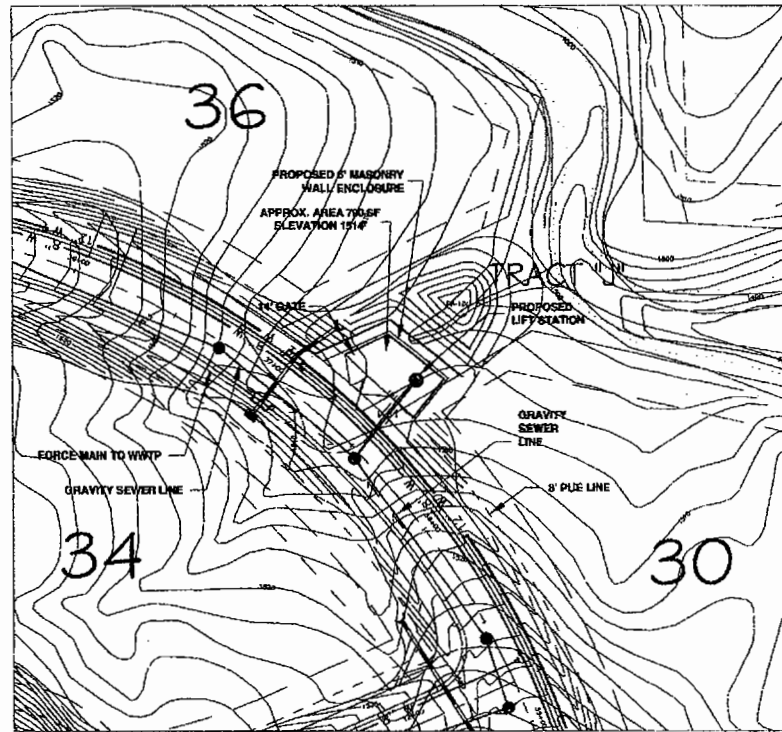
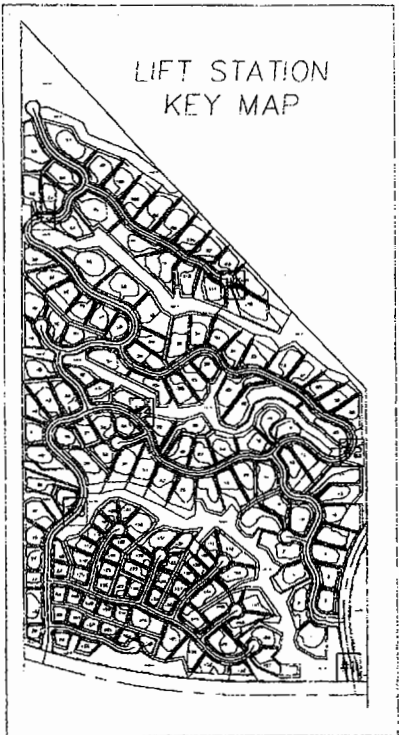
LIFT STATION #1



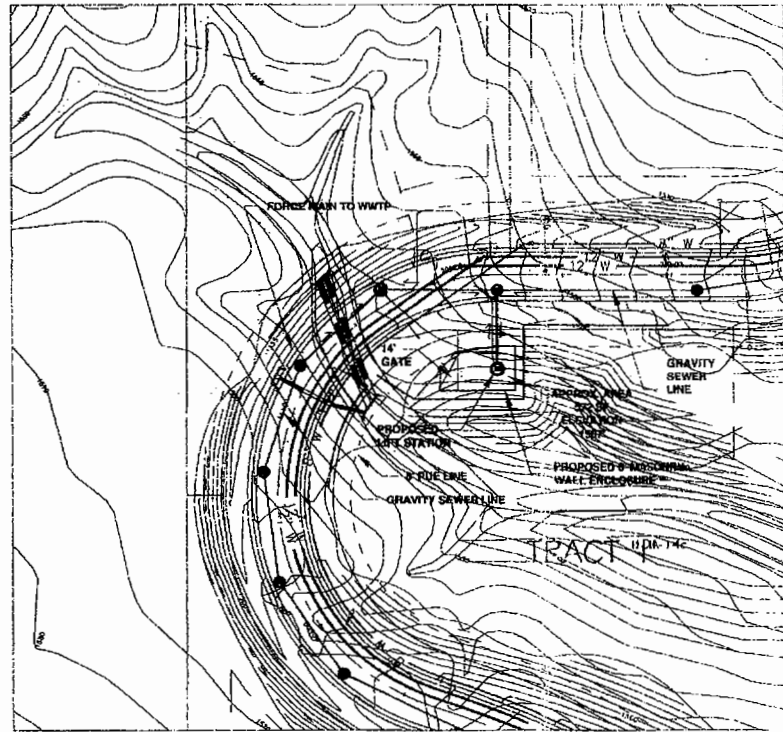
LIFT STATION #2



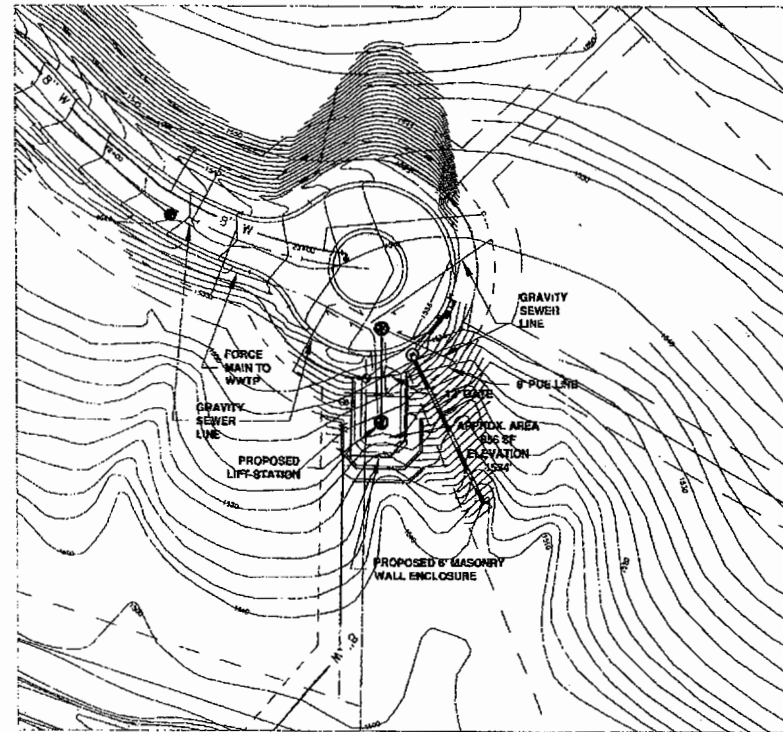
LIFT STATION #3



LIFT STATION #4



LIFT STATION #5



LIFT STATION #6

CALL TWO WORKING DAYS BEFORE YOU DIG
263-1100
1-800-782-5348
(OUTSIDE MARICOPA COUNTY)

SCALE: 1" = 20'

AS-BUILT CERTIFICATION:

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REGISTERED CIVIL ENGINEER _____ DATE _____

AZ REGISTRATION NUMBER _____

SITE PLANS - SEWER LIFT STATIONS #1-6

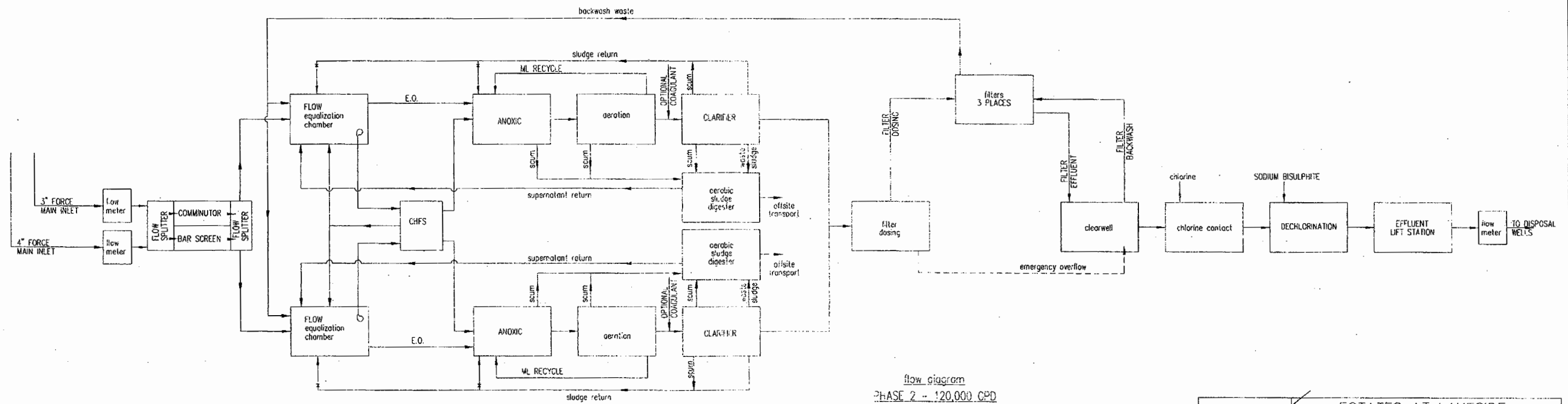
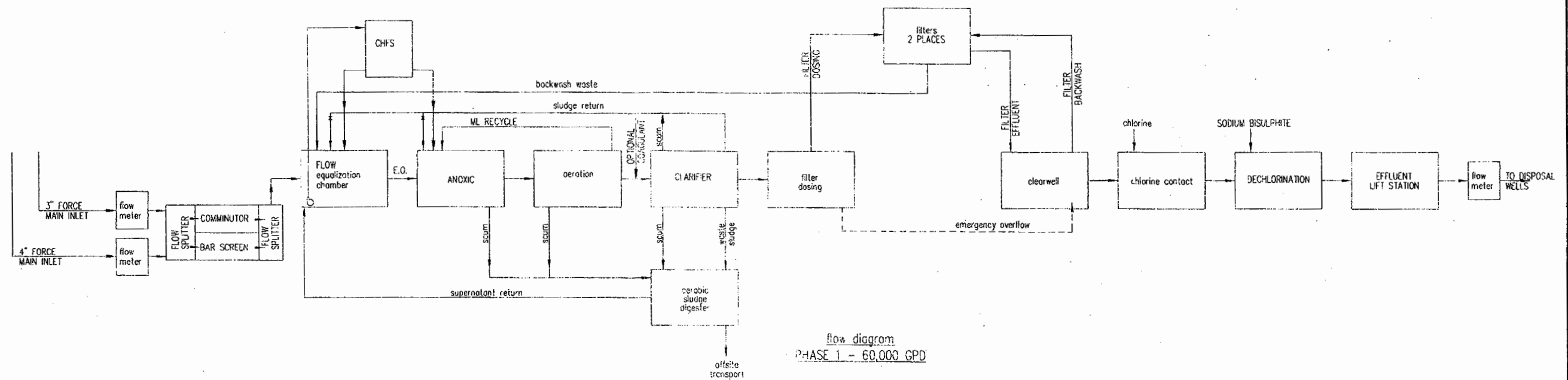
ESTATES AT LAKESIDE
WASTEWATER TREATMENT PLANT
PEORIA, ARIZONA

ESCA ENVIRONMENTAL, INC.

7401 W. ARROWHEAD CLUBHOUSE DRIVE, UNIT 2068
GLENDALE, AZ 85308 PH (623) 566-6563



DESIGN	DRAWN	CHECK	DATE	JOB	SHEET
ESC	SRL	ESC	7/1/05	03028	9 OF 48



AS-BUILT CERTIFICATION:

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REGISTERED CIVIL ENGINEER DATE

AZ REGISTRATION NUMBER

ESTATES AT LAKESIDE
WASTEWATER TREATMENT PLANT
PEORIA, ARIZONA

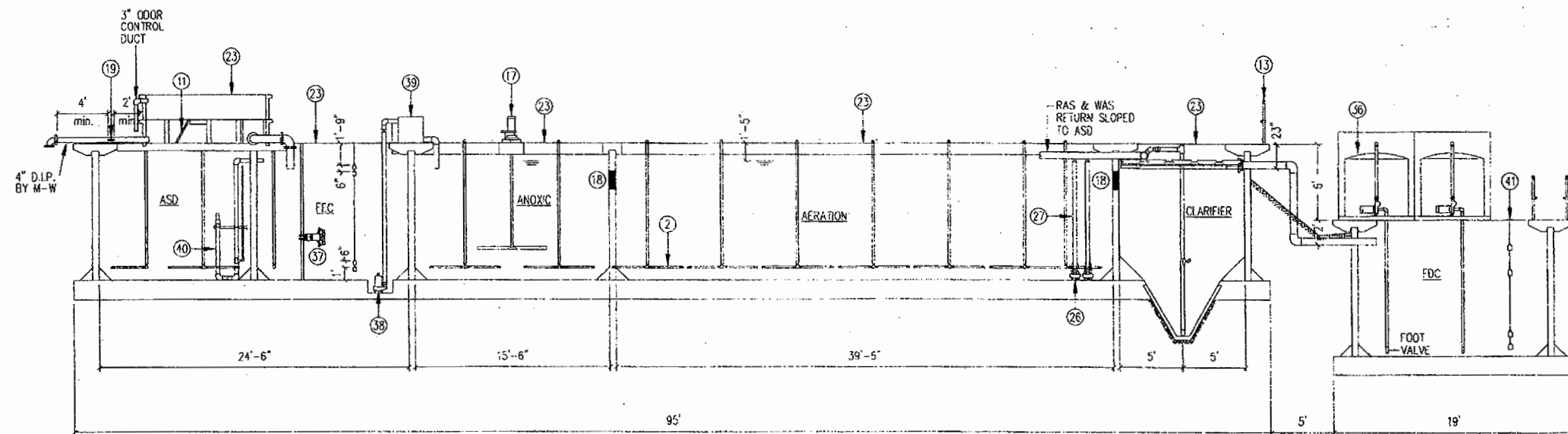
ESCA ENVIRONMENTAL, INC.
7401 W. ARROWHEAD CLUBHOUSE DRIVE, UNIT 2088
GLENDALE, AZ 85308 PH (623) 566-6663

W.W.T.P. flow diagram

ESTATES AT LAKESIDE

PEORIA, MARICOPA CO., AZ. JOB NO. 03-254

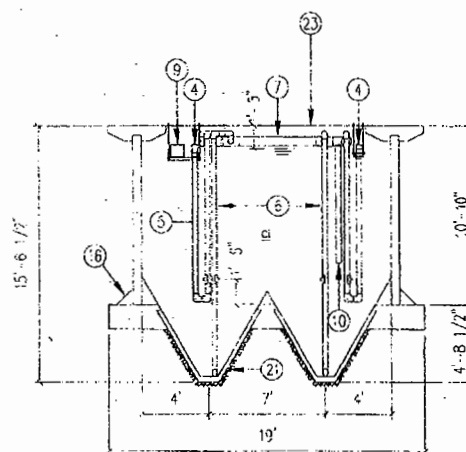
date	by	scale	checked	shd.	of	drawing No.
2/1/05	S.D.	NONE	D.G.	1		254-1A



SECTION A-A

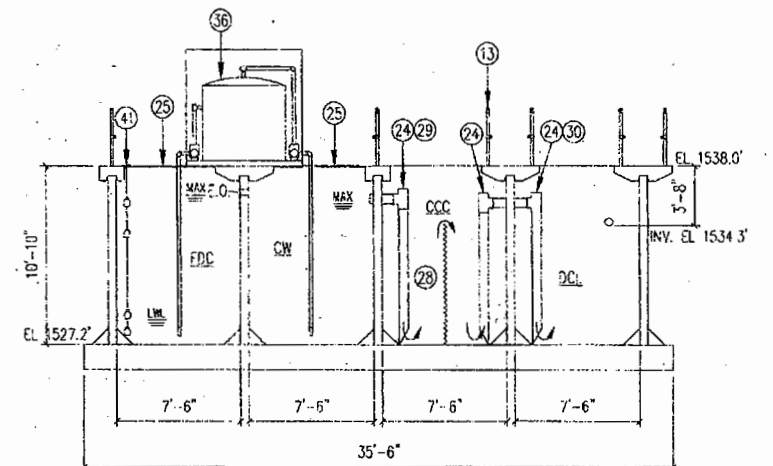
- 1 = WWTP BLOWER ASSEMBLY (IN BLOWER BUILDING)
- 2 = AIR DIFFUSER, ROLL MIX, ANTI-BACKFLOW
- 3 = 1/2" Ø BUBBLER
- 4 = ALUMINUM SKIMMER TROUGH
- 5 = 3" Ø SKIMMER DISCHARGE
- 6 = 3" Ø SLUDGE EDUCTOR WITH PVC KNIFE VALVE
- 7 = 6" Ø SLUDGE RETURN LINE
- 8 = WWTP CONTROL PANEL (IN BLOWER BUILDING)
- 9 = ALUMINUM WEIR TROUGH
- 10 = CONCRETE BAFFLE
- 11 = COMMUNICATOR & BAR SCREEN BY-PASS
- 12 = ADJUSTABLE AIR LIFT SUPERNATANT RETURN
- 13 = 1 1/4" DIA DOUBLE RAIL ALUMINUM HANDRAIL
- 14 = 4" SQ. AIR HEADER
- 15 = 2" Ø AIR HEADER
- 16 = FIELD POURED CONCRETE FILLET (NOT SHOWN)
- 17 = ANOXIC ZONE MIXER
- 18 = 12" X 18" TRANSFER PORT
- 19 = FLOW METER TRANSDUCER
- 20 = 6" Ø PVC KNIFE VALVE
- 21 = PRECAST CONCRETE HOPPER SUPPLIED BY MAR-WOOD, INC. INSTALLED BY BASE SLAB CONTRACTOR
- 22 = SELF COMPACTING PEA GRAVEL BACKFILL MATERIAL (NOT SHOWN)
- 23 = REMOVABLE ALUMINUM COVERS FOR ODCR CONTROL
- 24 = 8" FLOW CONTROL BAFFLE

- 25 = GRATING
- 26 = ML RECYCLE PUMP
- 27 = 3" PVC ML RECYCLE LINE
- 28 = BAFFLE
- 29 = CHLORINE APPLICATION POINT
- 30 = SODIUM BISULPHITE APPLICATION POINT
- 31 = CHLORINE FEEDER AND SOLUTION TANK
- 32 = SODIUM BISULPHITE FEEDER AND SOLUTION TANK
- 33 = Filter dosing pumps, 30CE, 1.5 HP, 480/3/60
- 34 = EFFLUENT LIFT STATION CONTROL PANEL
- 35 = backwash pumps, 25CCE, 15 HP, 480/3/60
- 36 = sand filter 19.6 sq. ft.
- 37 = FEC MIXER, 2.1 HP, 480/3/60 WITH SLIDE RAIL
- 38 = equalization pumps, 1:5 hp, 80 gpm @ 15' tdn
- 39 = constant head flow splitter box 0-100 gpm, TWO 3" weirs
- 40 = 6" emergency overflow
- 41 = float switches
- 42 = flow equalization blower (IN BLOWER BUILDING)
- 43 = adjustable 3" air lift scum removal pump



SECTION B-B

site contractor to excavate to depth shown and install a 3\"/>




SECTION C-C

AS-BUILT CERTIFICATION:

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REGISTERED CIVIL ENGINEER _____ DATE _____

AZ REGISTRATION NUMBER _____

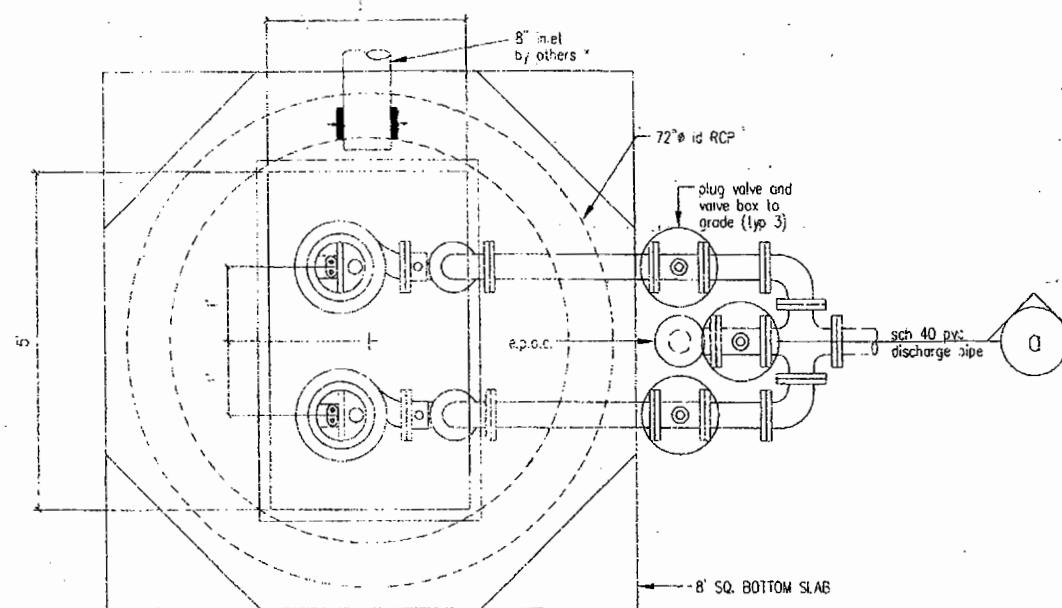
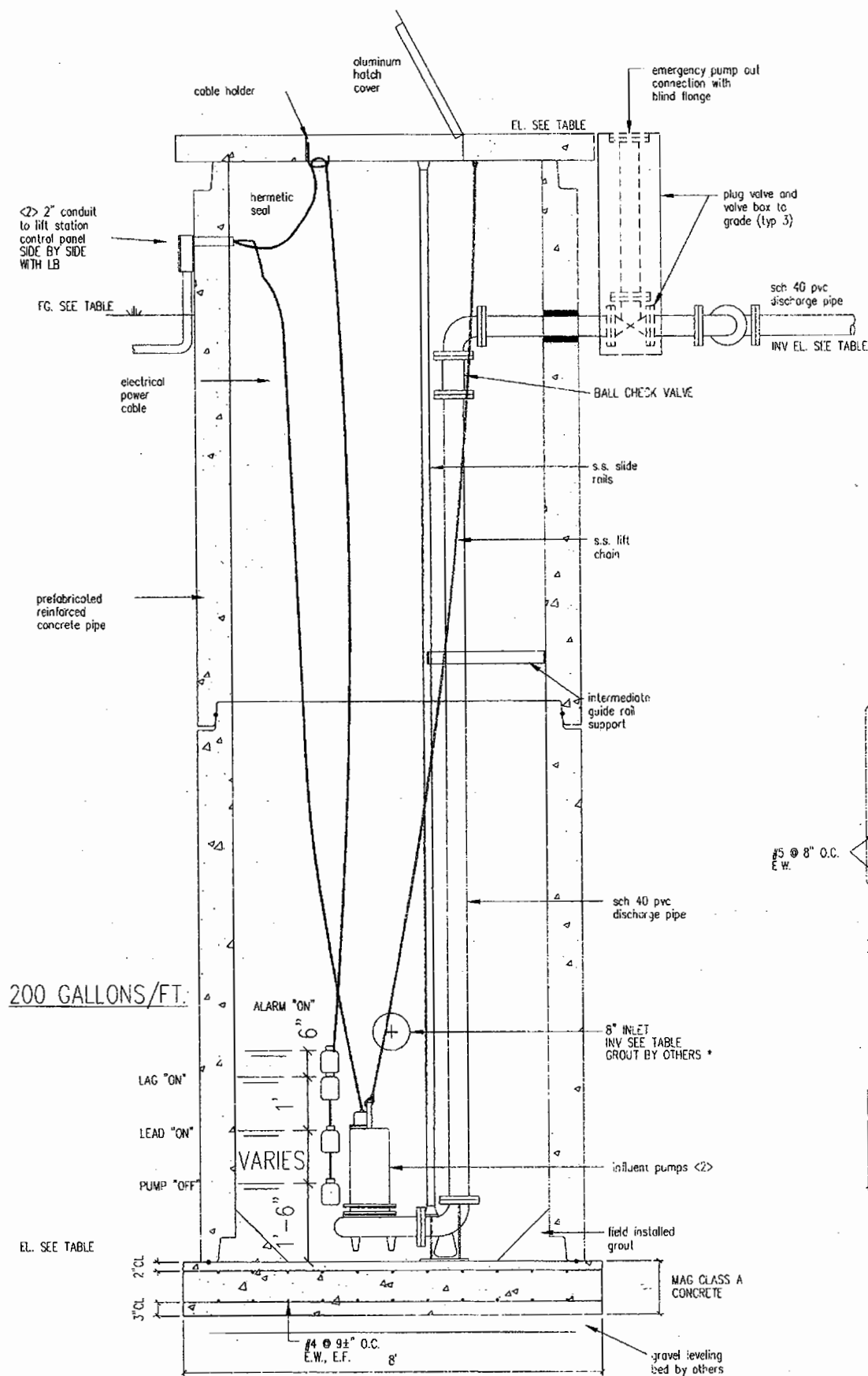


ESTATES AT LAKESIDE
WASTEWATER TREATMENT PLANT
PEORIA, ARIZONA

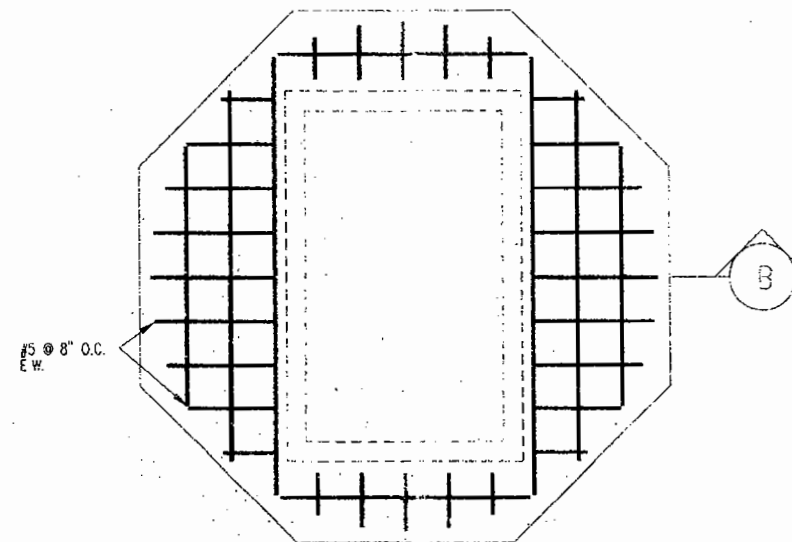
ESCA ENVIRONMENTAL, INC.
7401 W. ARROWHEAD CLUBHOUSE DRIVE, UNIT 2088
GLENDALE, AZ 85308 PH (623) 565-6663

SECTIONS					
60,000 GPD WWTP W/ DENITRIFICATION FOR ESTATES AT LAKESIDE					
PEORIA, MARICOPA CO., AZ. JOB NO. 03-254					
date	by	scale	checked	shl.	of drawing No.
2/1/05	S.D.	3/16"=1'	D.C.	4	254-4A

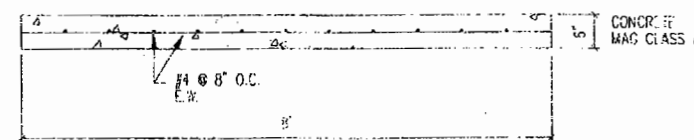
MAR-WOOD
Peoria, Arizona



LIFT STATION--PLAN



LIFT STATION TOP SLAB



SECTION B

	LIFT STATION NO.						
	1	2	3	4	5	6	ELS
RIM ELEVATION	1454.5'	1450.5'	1500.5'	1510.5'	1555.5'	1525.5'	1537'
GROUND ELEVATION AT WET WELL	1454'	1450'	1500'	1510'	1555'	1525'	1536.5'
EFFLUENT INVERT ELEVATION	1450.5'	1446.5'	1496.5'	1506.5'	1551.5'	1521.5'	1533'
LOWEST INLET TO WET WELL (FT ASL)	1432'	1447.1'	1492.5'	1505.2'	1547.7'	1526'	1534.3'
(-) 5.0' TO LOW WATER LEVEL (-5 FT MIN)	1427'	1442.1'	1487.5'	1500.2'	1541.7'	1521'	1528.2'
HIGHEST FORCE MAIN ELEVATION	1554'	1518'	1542'	1554.3'	1584'	1588'	1553'
STATIC HEAD (FT)	127'	78'	55'	54'	43'	77'	25'
LENGTH OF FORCE MAIN (FT)	2670'	1550'	1360'	705'	880'	1350'	928'
FORCE MAIN PIPE SIZE & MATL	3" PVC	2" PVC	4" PVC	3" PVC	3" PVC	2" PVC	4" PVC
GPM	50	25	150	60	35	25	100
VELOCITY (FPS)	2.27'	2.55	3.8	2.72'	3.57	2.55	2.55
FRICTION LOSS (FT/100' AT C=140)	0.74	1.47'	1.4	1.03	2.75'	1.47'	0.85'
FRICTION LOSS (FT)	20.0'	23'	19	8'	25	20'	9'
TOTAL DYNAMIC HEAD (FT)	147'	99'	74	62'	68'	97'	34''
PUMP MFG	BARNES	BARNES	BARNES	BARNES	BARNES	BARNES	BARNES
MODEL	SGV7542L	SGVH2042L	4SE15044L	SGV3042L	SGVFP2042L	SGVH2042L	4SE3044L
VOLTS/PHASE/HERTZ	480/3/60	480/3/60	480/3/60	480/3/60	480/3/60	480/3/60	480/3/60
IMPELLER DIA (IN)	6.48"	5.63"	9"	4.75"	4.75"	5.63"	7.00"
HP	7.5	2	15.0	3.0	2.0	2.0	5.0
FLA EACH PUMP	12.0	4	19.0	6.5	4.0	4.0	9.0
TYPE OF PUMP	GRINDER	GRINDER	3" SOLIDS	GRINDER	GRINDER	GRINDER	3" SOLIDS
PUMP DISCHARGE SIZE (IN)	2"	2"	4"	2"	2"	2"	4"

LIFT STATION PUMP SELECTION IS GOVERNED BY THE FLOW NECESSARY TO MAINTAIN SUFFICIENT VELOCITY IN THE FORCE MAIN TO PREVENT SETTLING OF SOLIDS. USE 2" FORCE MAINS AND 25 GPM FOR THE SMALLEST FLOWS. ASSUME EACH LOT = 3.5 PEOPLE @100 GPD/PERSON = 350 GPD AD/FLOT X 3.0 PEAKING FACTOR = 1050 GPD OR 0.73 GPM/LOT.
** ADD 20% S.F. TO ELS. USE 40' TDH.

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REGISTERED CIVIL ENGINEER DATE

AZ REGISTRATION NUMBER

ESTATES AT LAKESIDE
WASTEWATER TREATMENT PLANT
PEORIA, ARIZONA

ESCA ENVIRONMENTAL, INC.

7401 W. ARROWHEAD CLUBHOUSE DRIVE, UNIT 1088
GLENDALE, AZ 85308 PH (623) 566-6661

LIFT STATIONS AND SECTIONS									
ESTATES AT LAKESIDE									
PEORIA, MARICOPA CO., AZ									
JOB NO. 03-254									
date	by	scale	checked	sh.	of	drawing No.			
2/1/05	S.D.	3/4"=12"	O.C.	9		254-9			

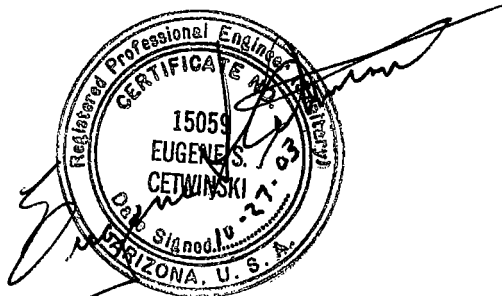
AW
MAR - WOOD
Peoria, Arizona

APPENDIX B

ANALYSIS OF ALTERNATIVE EFFLUENT DISPOSAL OPTIONS

ESTATES AT LAKESIDE
PEORIA, ARIZONA

Analysis of Alternative
Effluent Disposal Options
Wastewater Treatment Plant



Prepared for: Charles Civer
42265 North Old Mine Road
Cave Creek, Arizona
(480) 451-6961

Prepared by: ESCA Environmental, Inc.
7401 West Arrowhead Clubhouse Drive
Unit 2088
Glendale, Arizona
(623) 566-6663

October 27, 2003

INDEX

<u>TOPIC</u>	<u>PAGE NO.</u>
Executive Summary	1
Introduction	2
Description of Wastewater Treatment Plant	3
Effluent Disposal Options	5
Recommendations	7

Executive Summary

This report investigates the options available to ultimately dispose of the effluent from a 60,000 gpd Wastewater Treatment Plant (WWTP) at "Estates at Lakeside" in Peoria, Arizona. Several options were studied and several pertinent municipalities were interviewed to determine the most beneficial and cost effective option to pursue.

The effluent quality standard was assumed to be 30 mg/l BOD, 30 mg/l SS and 10 mg/l total nitrogen. With these parameters, it was determined that a pre-fabricated, package type activated sludge aeration plant would be the cost effective option (Marwood system).

Several options were investigated for the ultimate disposal of the effluent from the WWTP. The recommended options, from a cost and schedule standpoint, are:

- Short term - "vault-and-haul"
- Long term - deep well injection/reuse on-site

The estimated schedule for the design, permitting and hydro-geologic studies to accomplish obtaining the required approvals to construct and operate the WWTP is 12 to 18 months. During this time, the temporary "vault-and-haul" General APP Permit would allow for the development of 12 to 15 lots (two year maximum). After that, an APP/Reuse/Recharge Permit would be in effect for the construction and long term operation of the WWTP.

Introduction

The subject of this study is a subdivision known as "Estates at Lakeside". It consists of 209 residential lots on 220 acres. Construction will take place in four phases. Phase I will consist of 70 lots and include the Wastewater Treatment Plant (WWTP), along with the sanitary sewerage collection system. The following phases will consist of 43, 26 and 70 additional lots, respectively.

"Estates at Lakeside" is located on the northwest corner of the intersection of State Route 74 and Old Lake Pleasant Road. It consists of very rough terrain, high Sonoran desert vegetation, with several hill and valley type ravines traversing the property predominantly in a northwest/southeast orientation. The lots will be governed by Hillside Ordinance as to available building area, etc. The project lies within the City of Peoria, Arizona. The site is designated by FEMA F.I.R.M. Panel 04013-C-0735-G as a Zone "X". This is an area of minimal flooding during the 100-year storm event.

The sanitary sewer collection system will be a combination of gravity sewer and force main. Each lot will have a sump collection tank with a grinder type submersible pump to transfer the waste to the collection system. The sewer system will feed a WWTP located at the site.

The developer and a homeowner's association will be responsible for the operation of the WWTP until such time as the City of Peoria can take over this function. Ultimately, the WWTP will be owned and operated by the City of Peoria.

Description of Wastewater Treatment Plant

Several different options for the WWTP process are available to achieve the effluent quality required to meet State standards. For this size subdivision, a 60,000 gpd WWTP would amply process the wastewater produced in the four phase development. A package type WWTP is most cost effective for smaller plants as this.

The effluent quality standard is assumed to be 30 mg/l of BOD, 30 mg/l of SS and 10 mg/l of total nitrogen. The Best Available Demonstrated Control Technology (BADCT) in this situation is an activated sludge, aeration type WWTP process, with nutrient removal for nitrogen and disinfection. The package type or pre-fabricated construction is not only cost effective, but also very amenable to increase in size at a future date, should the developer or City decide to add more connections to the collection system.

The "Marwood" precast concrete system, fabricated on-site, is the recommended WWTP for ""Estates at Lakeside"". The reasons for this are:

- BADCT proven
- Cost effective
- Ease of expansion
- Reliability
- O&M efficiency
- Ease of construction

The location of the WWTP on the project site is very critical to cost and efficiency of the total system. The State of Arizona, Department of Transportation, has indicated that they plan to take an additional 110 feet of right-of-way south on Route 74 in the future. This substantially reduces the options for the portion of the site located south of the highway. The initially proposed WWTP site was south of the highway and on the east corner. The ADOT taking eliminates this possibility.

Currently, it is recommended to place the WWTP south of the highway and at the west corner of the property. Even with the right-of-way taking and the setback requirements from property lines, there is sufficient land available for the WWTP. Assuming the WWTP is covered, or in a building, the 50-ft. setback is in effect. The State right-of-way is considered part of the setback. Therefore, the southwest corner of the site is not only possible, but also down-gradient, which is very desirable. This is the optimum WWTP site location for the project.

Effluent Disposal Options

The general area of this project site is currently somewhat remote. The potential development in the near future is very optimistic. Due to the location, the ultimate disposal of the effluent from the WWTP presents a serious concern. There are several technical options available for disposal; however, most of them are not practical for one reason or another.

Several municipal entities were contacted, and interviewed, to discuss their concerns and recommendations as to the disposal of the effluent from this WWTP. These were:

- State of Arizona, Department of Environmental Quality (ADEQ)
- Maricopa County Environmental Services Department (MCESD)
- Maricopa Association of Governments (MAG)
- City of Peoria, Public Works Department
- Maricopa Irrigation District (MID)

Following is a description of the effluent disposal options considered for the effluent from the WWTP at the "Estates at Lakeside":

- Evaporative Ponds: Land requirements would be too great and therefore this option was eliminated.
- Deep Seepage Pits: The geologic condition locally of heavily fractured rock and the difficulty of drilling large diameter pits to excess depth made this option not cost-effective and impractical.
- Pipe to Irrigation District: The MID is located approximately 1/2 mile east of the site. The political implications, cost of pipeline (with bridge crossing) and infrequency of flow in the MID canal, made this option difficult. Being dependent upon another entity to operate the WWTP is not desirable.

- Direct Discharge: The option of direct effluent discharge to the Agua Fria River was considered. The MCESD expressed serious concerns over discharging upstream of the dam, or even downstream via Morgan Wash. This option would require a NPDES Permit from the U.S. EPA. These factors make this option difficult.
- Reuse On-Site: This option would be viable if enough open green space (golf course, etc.) were included in the development. However, they are not included. Thus, irrigation on-site seems to be unlikely with the current plan.
- Wetlands Riparian Habitat: The option of wetlands disposal, possibly to a riparian habitat such as Morgan Wash (approximately 1/4 mile north), was investigated. This option presented some difficulty in the amount of land required for the wetlands, as well as the permitting difficulties and obtaining easements to get to Morgan Wash.
- Deep Well Injection: Ultimate disposal of the WWTP effluent via deep well injection into the aquifer appeared to be a viable option to consider. This option affords the benefit of recharge to the groundwater aquifer, thereby allowing recharge credits that the City of Peoria could benefit from in the future.
- Combination: A combination of the above options was considered. It appears that depending upon the sequence of the development, a combination of several alternatives would be beneficial.

Recommendations

As indicated earlier, depending on the sequencing of the project, specifically Phase I (70 lots and WWTP), a combination of options would appear to be most beneficial, both in terms of time and cost. The recommended course of action will address the disposal of the effluent in terms of short range (immediate) and long range solutions to the question. In this manner, the short term solution can be incorporated, while the long term solution is being designed and permitted.

- **Short Term**

Designing the WWTP, obtaining the required permits to construct and operate the WWTP and performing the necessary hydro-geologic studies for recharge/reuse permits will take approximately 12 to 18 months to accomplish. It is therefore very beneficial to incorporate a short term solution to allow for immediate development.

It is recommended that in the short term a "vault-and-haul" system be utilized. Under Rule 4.14 of the ADEQ Unified Rules, a General APP Permit can be issued for such a system for flow quantities of less than 3,000 gpd for a temporary, two year period. This would allow the development of 12 to 15 lots, before a WWTP is in operation.

A "vault-and-haul" system consists of a large tank (normally rented) on-site to collect the flow from the sewer system. A pumper truck hauls the wastewater to a certified WWTP periodically to empty the tank.

- **Long Term**

The long term solution for the ultimate disposal of the effluent from the WWTP is best implemented as a combination of options studied. The recommended course of action in the long term is to utilize "deep well injection" into the aquifer, combined with reuse for irrigation on-site in all "green" areas, such as drainage tracts, etc.

The following will describe the other options investigated, with major reasons for not recommending them:

- Evaporative Ponds: large land requirement of 30 to 40 acres.
- Deep Seepage Pits: not suited n geologic conditions present.
- Pipe to MID: dependent on separate government entity for operation of WWTP.
- Direct Discharge: need for Federal EPA permit (NPDES), along with much greater permit monitoring and reporting.
- Wetlands: increased operational, permitting requirements, along with excessive land requirements.

The recommended option requires an Aquifer Protection Permit (APP) to operate, along with a Reuse/Recharge Permit, both from the ADEQ. The WWTP would also need the City of Peoria's approval since they will ultimately be responsible for its operation. Peoria would also have to "sponsor" a MAG 208 Small Plant Amendment to the current Facility Plan in Maricopa County.

Before application can be made for the required permits, the WWTP and deep well would need to be designed. A detailed hydro-geological investigation of the impact the injection of effluent would have on the aquifer in the area of the WWTP needs to be completed.

As stated earlier in this report, the WWTP would have a 60,000 gpd capacity, with expansion capability to double in size at a later date. The deep well injection well would be 10 to 12 inches in diameter and should reach the deep aquifer in this area between 90 and 120 feet. The cost of this deep well is estimated at \$15,000 to \$20,000.

It is also recommended that provision be made in the design to utilize effluent, as needed, to irrigate on-site all areas possible. This combination of options will also allocate recharge credits for the City of Peoria when they take over operation of the WWTP.

APPENDIX C

ENGINEERING DESIGN REPORT (SYNOPSIS)

FINAL DESIGN REPORT
ESTATES AT LAKESIDE
WASTEWATER TREATMENT PLANT
PEORIA, ARIZONA

Prepared for:

Lake Pleasant Sewer Company
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Prepared by:

ESCA Environmental
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February, 2005



Project Narrative

PROJECT NARRATIVE

This project consists of an Activated Sludge Aeration Wastewater Treatment Plant to service the "Estates at Lakeside" subdivision in Peoria, Arizona, located at the northwest corner of the intersection of Highway 74 and Old Lake Pleasant Road.

The subdivision will consist of 166 lots, approximately 1.0 acre in size. The basis for design is 166 lots @ 3.5 people/lot @ 100 gpd, or 58,100 gpd, nominally 60,000 gpd design flow. The ultimate disposal of the effluent from the WWTP was analyzed in a "cost effective analysis" of several alternates. See attached "Analysis of Alternative Effluent Disposal Options, WWTP" dated October 27, 2003. The option of choice was the disposal of effluent via deep well injection into the aquifer.

ESCA has evaluated the data obtained from a detailed geologic study of the hydrogeologic regime in the area, along with conducting a drilling program consisting of four wells drilled at the site. (Well logs and permits are attached to this report.) The data has indicated that this option is, indeed, quite viable at this location. A completed analysis will be submitted to ADWR for review and is available upon request. A typical example of the deep injection well design is attached to this report and further detailed on the design drawings.

The WWTP is designed to double in capacity to 120 gpd, based upon the addition of a future phase of "Estates at Lakeside" located northwest of the first phase, consisting of approximately the same number of units. The design documents reflect this as Phase I and Phase II.

The basic WWTP process consists of:

- Bar Screen/Comminutor
- Flow Equalization
- Aeration/Anoxic Treatment
- Clarifiers
- Aerobic Sludge Digester

- Filtration
- Chlorination/Dechlorination
- Nitrification/Denitrification
- Noise/Odor Control
- Influent and Effluent Flow Measurement

The Design Calculations are attached to this report. The WWTP site is located south of Arizona Highway 74, and the subdivision is located north of that highway. Therefore, a boring under the highway will be required to carry the force mains to the WWTP. This crossing is detailed in the design drawings.

The subdivision is north of Highway 74 and is extremely vertically challenged, having four major washes traversing the site. This creates the need for the utilization of lift stations in the collection system. In fact, six sanitary sewer lift stations are required to economically carry the sewage to the WWTP. The system layout and lift station designs are attached to this report. All six lift stations will be equipped with emergency power and telemetering to the WWTP in case of an emergency. The complete electrical and telemetering design is detailed in the construction documents. Electrical Specifications for the WWTP are attached to this report.

The influent to the WWTP is via Pump Station #1 (2-inch force main) and Pump Station #3 (4-inch force main). The effluent pump station (EPS) carries treated effluent to the injection well via a 4-inch force main. The primary injection Well "D" is located north of Highway 74, and the secondary injection Well "A" is located on the WWTP site. The point of compliance (P.O.C.) is Well "B", Well "C" is a monitor well. The P.O.C. is down-gradient of the injection wells. Normal operation is to inject effluent into Well "D". The effluent piping is designed to be flexible enough to allow switchover to Well "A" when necessary.

The site of the WWTP is traversed by a wash carrying off-site drainage from southwest to northeast of the site, being carried off-site via an existing large culvert under the highway to the north. This drainage will not be altered by the design. The on-site retention calculations are depicted on the

Drainage Plan in the construction documents. The attached WWTP drawings reveal that the off-site drainage is diverted around the facility and directed to the same drainage wash as in the pre-construction condition. The on-site retention of storm water will accommodate the design storm required by MCESD.

WWTP

DESIGN DATA
CALCULATIONS
&
SPECIFICATIONS
&
CUT SHEETS



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January 6 2005

**ESTATES AT LAKESIDE
WASTEWATER TREATMENT PLANT
DESIGN CALCULATIONS**

INFLUENT DESIGN CONDITIONS

Average Flow (GPD)	60,000
Design Flow Period (HRS)	24
Average Flow During Design Flow Period (GPH)	2,500
Average Flow During Design Flow Period (GPM)	42
Peak Hourly Flow after Flow Equalization (GPM)	42
5 Day BOD (mg/l)	210
5 Day BOD (LBS/DAY)	105
TSS (mg/l)	230
TSS (LBS./DAY)	115
TKN (mg/l)	40

PRETREATMENT

Use Muffin Monster Model 30000-0012 with a maximum capacity of 425 GPM which will be adequate for Phases 1 and 2. Provide manually cleaned bar screen by-pass having one inch bar spacing.

INFLUENT FLOW EQUALIZATION CHAMBER

Basis of Design = 20% ADF
20% of 60,000 GPD = 12,000 Gallon
Provide a submersible mixer for solids suspension
Provide air diffusers if oxygen is required to prevent septicity.
Air required = 1.5 CFM/1000 Gallon = 18 CFM
Use pumps sized for approximately 80 GPM @ 15' TDH
which will be adequate for Phase 2.

CONSTANT HEAD FLOW SPLITTER BOX

Adjust forward flow weir for 42 GPM (ADF)
All excess flow will be returned to the flow equalization chamber.

AERATION/ANOXIC DESIGN CALCULATIONS

Recommended Design Criteria per ADEQ Bulletin # 11

10 - 20 pounds BOD/1000 cubic feet - Use 15 pounds/1000 cubic feet.

24 hour detention

75 - 150% RAS recycle

2000 - 4000 mg/l MLSS

2100 cubic feet air per pounds BOD removed

Maximum Design Pounds BOD per 1000 cf = 15.0

BOD = 105 lbs/day

Volume required = $\frac{105}{15.0} \times 1000 \times 7.48 = 52,360$ gallons

Volume provided = 57,700 gallons = 7714 cubic feet

Actual loading = $\frac{105 \text{ lbs BOD} \times 7.48}{57,700 \text{ gallons}} \times 1000 = 13.6$ pounds BOD/Day/1000 cf

Actual Detention = $57,700 \text{ gallons} \times \frac{24 \text{ hrs/day}}{60,000 \text{ GPD}} = 23.1$ hours

1/4 Anoxic = 14,425 gallon required - 16,300 gallon provided

3/4 Aeration = 43,275 gallon required - 41,400 gallon provided

CLARIFIER

Minimum Detention time required per ADEQ Bulletin 11 = 4.0 hours

Detention time provided = $10,300 \text{ gallons} \times \frac{24 \text{ hrs/day}}{60,000 \text{ GPD}} = 4.1$ hours

Maximum Surface loading rate at ADF required per ADEQ Bulletin 11 = 450 GPD/SF

Surface loading rate provided = $\frac{60,000 \text{ GPD}}{10.0' \times 15.0'} = 400$ GPD/SF

Maximum Clarifier Weir loading rate required per ADEQ Bulletin 11 = 3200 GPD/LF

L. F. Weir provided = 18.7'

Weir loading rate provided = $\frac{60,000 \text{ GPD}}{18.75 \text{ LF}} = 3200$ GPD/LF

Return activated sludge (RAS) required = 50 - 150% ADF = 21 - 63 GPM

Use two 3" air lift sludge eductors each capable of 0 - 50 GPM, 90% submergence,

1 foot lift, 7 CFM required

One surface skimmer, 80% Submergence, 1 foot lift, 15 CFM maximum required

AEROBIC SLUDGE DIGESTER

Assume 0.4 lb. of sludge produced per lb. of BOD removed.

Assume 100% BOD removed. Assume 2% solids

Solid sludge = $0.4 \times 105 \text{ lbs/day BOD} = 42 \text{ lbs/day}$

Liquid sludge = $\frac{42 \text{ lbs/day}}{0.02 \times 8.34} = 252 \text{ gal/day}$

Digester volume provided = 12,000 gallon

Digester retention time $\frac{12,000 \text{ gal}}{252 \text{ gal/day}} = 48 \text{ days}$

Loading (% ADF) = $\frac{12,000 \text{ gal}}{60,000 \text{ gal/day}} = 20\%$

Loading (cu. ft./P.E.) $\frac{12,000 \text{ gal}}{7.48 \text{ gal/cf} \times 618} = 2.6$

P.E. = $\frac{105 \text{ lbs BOD/day}}{0.17 \text{ lbs BOD/person/day}} = 618$

Air required = $30 \text{ cfm/1000 cf} = \frac{12,000 \text{ gal} \times 30}{7.48 \text{ gal/cf} \times 1000} = 48 \text{ CFM}$

Dissolved oxygen level = 1 - 2 mg/l

AERATION AIR CALCULATIONS

Influent BOD = 210 mg/l = 105 lbs/day

Influent TKN = 40 mg/l = 20 lbs/day

Assume 100% BOD removed and N conversion

For every lb. of BOD removed 1.4 lbs. of O_2 is required

For every lb. of TKN removed 4.6 lbs. of O_2 is required

O_2 required = $105 (1.4) + 20 (4.6) = 239 \text{ lbs/day}$

60 cf air = 1 lb. O_2 Assume 5% oxygen transfer

$\frac{239 \times 60}{.05 \times 1440} = 199 \text{ SCFM}$

BLOWER REQUIREMENT

Aeration ——— 199 SCFM

Clarifier ——— 29

Aerobic Sludge Digester ——— 48

Total Air Required ——— 276 SCFM

Adjust for job site conditions 1500' ASL — 110° F maximum ambient air

276 SCFM x 1.14 multiplier = 315 ACFM

PSIG required due to submergence = $8.5' \times .432 = 3.7 \text{ PSIG}$

Diffuser loss = 0.2 PSIG

Miscellaneous friction loss = 0.5 PSIG

Minimum blower discharge pressure required = 4.4 PSIG

Use Roots URAI56, 276 ICFM @ 5.0 PSIG, 1750 RPM, 15 HP

SAND FILTERS

Size for approximately 2.0 GPM/SF at Average Daily Flow (ADF) with one filter out of service
Peak Hourly Flow (PHF) equals average daily flow (ADF) due to equalization

ADF = 42 GPM

$42 \text{ GPM} \div 2.0 \text{ GPM/SF} = 21 \text{ SF required}$

Use 1 filter at 19.6 SF plus one standby for total of 2

FILTER PUMP CHAMBER

Size each pump for ADF (42 GPM)

Required pump conditions = 42 GPM @ 60' TDH

Use Barnes 3CCE, 1.5 HP, 480/3/60

Filter Pump Chamber Volume = 7200 gallons

Filter Pump Chamber detention time @ ADF = $7200 \text{ gallons} \div 42 \text{ GPM} = 171 \text{ minutes}$

BACKWASH PUMPS

Size for 15 GPM/SF filter area

$19.6 \text{ SF} \times 15 \text{ GPM/SF} = 294 \text{ GPM required}$

Use Barnes 25CCE, 15 HP, 480/3/60, 294 GPM @ 60' TDH

Clearwell Volume = 7000 gallons

Available backwash time = $7000 \text{ gallons} \div 294 \text{ GPM} = 24 \text{ minutes}$

CHLORINE CONTACT CHAMBER

Minimum 15 minute detention at peak hourly flow required

Peak Hourly Flow equals Average Daily Flow due to Equalization

$42 \text{ GPM} \times 15 \text{ min.} = 630 \text{ gallon required}$

6800 gallon provided

$6800 \text{ gallon} \div 42 \text{ GPM} = 162 \text{ minutes detention provided}$

CHLORINATION EQUIPMENT

Design feed rate (mg/l) = 8

Design feed rate (PPD) = $.06 \times 8 \times 8.34 = 4.0 \text{ PPD}$

Use 13% Sodium Hypochlorite

NaOCL required = $4.0 \text{ PPD} \div 1.1 \text{ lbs/gal} = 3.6 \text{ GPD}$

Minimum Chlorinator Capacity = 0 - 10 GPD

The chlorine dose will be increased if the strength of the solution decreases over time to maintain a 2.0 mg/l residual. Sodium Hypochlorite will be purchased in 5 gallon containers and stored in a 50 gallon solution tank.

DECHLORINATION EQUIPMENT

Dechlorination occurs practically instantaneously

No minimum detention time is required

Use 38% Sodium Bisulphite

Assume 2.0 mg/l or 1.0 PPD chlorine residual

$\text{Na HSO}_3 \text{ required} = 1.0 \text{ PPD Cl}_2 \times 1.6 \text{ PPD NaHSO}_3/\text{lb Cl}_2 = 1.6 \text{ lb Na HSO}_3 \text{ required/day}$

$1.6 \text{ PPD} \div 3.52 \text{ lb/gal} = 0.45 \text{ GPD}$

Minimum recommended chlorinator capacity = 0 - 10 GPD

ODOR CONTROL

The wastewater treatment plant tanks will be enclosed with aluminum hatch covers.

An activated carbon odor control system will be provided for removal of any H₂S which may be produced and cause a possible odor problem.

Design Criteria:

The maximum amount of foul air escaping the basins is equal to the volume displaced by the raw wastewater entering the headworks box plus the positive pressure air flow added by the flow equalization and wastewater treatment plant blowers. In order to create a negative pressure under the covers, a 1.4 factor is used when calculating the odor control blower.

Raw Wastewater Flow = 250 GPM = 34 CFM

Flow Equalization Chamber Blower = 20 CFM

Wastewater Treatment Plant Blower = 315 CFM

Total Inflow 369 CFM

Total Outflow Required = $369 \times 1.4 = 517 \text{ CFM}$

Use Calgon Model HF-600 Activated Carbon Odor Control System having a capacity of 400 - 600 CFM when operating at 12 inch WC pressure loss with a 5.0 HP, 480/3/60, TEFC Motor.

NOISE CONTROL

Oversized blowers will be used so they may run at a lower RPM which will therefore, produce less noise. In addition, inlet and discharge silencers will be provided, and the blowers will be installed inside a building for maximum silencing and noise control.

PROCESS DESIGN SUMMARY

Influent Flow Equalization Detention Time @ ADF	—— 4.8 Hours
Anoxic Detention Time @ ADF	—— 5.8 Hours
Aeration Detention Time @ ADF	—— 17.3 Hours
Clarifier Detention Time	—— 4.1 Hours
Clarifier Surface Settling Rate @ ADF	—— 400 GPD/SF
Return Activated Sludge Rate (RAS)	—— 50 - 150% ADF
BOD Loading	—— 13.6 BOD/1000 cf
Design MLSS	—— 2000 - 4000 mg/l
F/M Ratio	—— .05 - 0.15
Sludge Age	—— 20 - 30 Days
Filter Loading @ ADF with one Filter out of service	—— 2.1 GPM/SF
Filter Pump Station Detention Time @ ADF	—— 2.9 Hours
Chlorine Contact Chamber Detention Time @ ADF	—— 2.7 Hours
Dechlorination/Flow Meter Chamber @ ADF	—— 2.5 Hours



WASTEWATER TREATMENT PLANT SPECIFICATION DATA SHEET

8501 NORTH 75TH AVENUE
PEORIA, ARIZONA 85345
WWW.MAR-WOOD.COM
OFFICE: (623) 486-9445
FAX: (623) 486-9448

NAME: ESTATES AT LAKESIDE

LOCATION: PEORIA, MARICOPA COUNTY, ARIZONA

JOB NUMBER: 03-254 **MAR-WOOD MODEL** 1-7-60DN DATE: January 6, 2005

DESIGN CONDITIONS

Average Flow (GPD)	60,000
Design Flow Period (HRS)	24
Average Flow During Design Flow Period (GPH)	2,500
Average Flow During Design Flow Period (GPM)	42
Peak Hourly Flow After Flow Equalization	42
5 Day BOD (mg/l)	210
Suspended Solids (mg/l)	230
Total Kjeldahl Nitrogen (mg/l)	40

INFLUENT FLOW METER (2)

Polysonics DCT 1088
Transit Time Flow Meter with Totalizer

PRETREATMENT

Muffin Monster 30000-0012 (Max GPM)	425
HP	3.0
Bar Screen By-Pass - Bar Spacing (IN)	1.0
Volts/Phase/Hertz	480/3/60

FLOW EQUALIZATION CHAMBER

Volume (GALS)	12,000
% of ADF	20
Number of Grinder Pumps	2
GPM @ TDH	100 @ 15'
HP	1.9
Volts/Phase/Hertz	480/3/60
Manufacturer	Barnes
Pump Model	
Impeller Size (IN)	6.50
CFM Air/1000 Gallon	1.5

EQUALIZATION MIXER

Number of Mixers	1
BHP	2.1
Volts/Phase/Hertz	480/3/60
Manufacturer	ABS
Model	RW2022

EQUALIZATION BLOWER

Number of Blowers	1
Stand-By Air Supply	Aeration Blower
CFM @ PSIG Required at Phase 1	20 @ 5.0
CFM @ PSIG Required at Phase 2	40 @ 5.0
HP	3.0
Volts/Phase/Hertz	480/3/60
Manufacturer	Roots Division/Dresser Ind.
Blower Model	URAI33
Blower RPM	1400

CONSTANT HEAD FLOW SPLITTER

Number of Forward Flow Weirs	1
Width of Each Forward Flow Weir (IN)	3
Depth of Each Forward Flow Weir (IN)	5
Raw Wastewater Design Flow Rate (GPM)	42

ANOXIC

Volume (GALS)	16,300
Detention Based on Average Daily Flow	6.5
Manufacturer	Enviro-pax
Mixer Model	3320 - 075
HP	$\frac{3}{4}$
Number of Mixers (1 Installed - 1 Spare)	2

AERATION

Volume (GALS.)	41,400
Detention Based on Average Daily Flow	16.6

AERATION & ANOXIC LOADING

Volume (GALS.)	57,700
Detention Based on Average Daily Flow	23.1
Pounds BOD per 1000 Cubic Foot Loading	13.6

MLSS RECYCLE PUMP

GPM @ TDH	175 @ 5'
HP	1.0
Volt/Phase/Hertz	480/3/60
Manufacturer	Barnes
Model	3SE1044L
Number of Recycle Pumps	2

CLARIFIER

Volume (GALS.)	10,300
Detention Based on Design Flow Period (HRS.)	4.1
Surface Settling Rate (GPD/Sq. Ft.)	400
Weir Overflow Rate (GPD/Lin. Ft.)	3,200
Number Sludge Hoppers	2
Sludge Collector	Gravity
Sludge Return Rate (GPM)	0 - 100

AEROBIC SLUDGE DIGESTER

Volume (GALS.)	12,000
Loading (% ADF)	20

AIR SUPPLY

Number of Operating Blowers	1
Standby Blower	1
ACFM @ PSIG (Each Blower)	294
RPM	1,700
HP	15
Volts/Phase/Hertz	480/3/60
Manufacturer	Roots Division/Dresser Ind.
Blower Model	URA156

FILTER PUMP CHAMBER

Volume (GALS)	7,200
Number of Filter Influent Pumps	2
Minimum Capacity of Each Pump (GPM @ TDH)	42 @ 60'
HP	1.5
Volts/Phase/Hertz	480/3/60
Manufacturer	Barnes Self-Priming
Filter Influent Pump Model	3CCE

SAND FILTERS

Number of Filters	2
Number of Filters in Service	1
Area of Each Filter (Sq. Ft.)	19.6
Total Filter Area in Service (Sq. Ft.)	39.2
Filter Loading with One Filter Out of Service (GPM/Sq. Ft.)	2.1
Backwash Rate (GPM/Sq. Ft.)	15

FILTER MEDIA

Filter Sand 0.59 - 0.70 mm, 1.50 Max UC, Each Filter	2,000 Lbs.
Gravel 0.25 - 0.125 inch, Each Filter	2,310 Lbs.

CLEARWELL

Volume (GALS)	7,000
Detention Time @ Average Daily Flow (MIN)	167
Number of Backwash Pumps	2
Number of Pumps Required to Backwash One Filter	1
Capacity of Each Pump (GPM @ TDH)	294 @ 60'
HP	15.0
Volts/Phase/Hertz	480/3/60
Backwash Pump Model	25CCE

CHLORINE CONTACT CHAMBER

Volume (GALS)	6,800
Detention Time @ Average Daily Flow (MIN)	162

CHLORINATION EQUIPMENT

Type of Chlorination	Sodium Hypochlorite
Design Feed Rate (mg/l)	6
Design Feed Rate (PPD)	3.0
13% Sodium Hypochlorite Required (GPD)	2.4
Chlorinator Capacity (GPD)	0 - 10
Model	P131-393SU
NOTE: One (1) spare chemical feeder provided to be used as a spare chlorinator or	

DECHLORINATION/FLOW MEASURING CHAMBER

Volume (GALS)	6,200
Detention Time @ Average Daily Flow (MIN)	148

DECHLORINATION EQUIPMENT

Type of Dechlorination	Sodium Bisulphite
Assume 1.0 mg/l Chlorine Residual	
Assume 1.6 PPD NaHSO ₃ /PPD CL ₂	
38% NaHSO ₃ Required Per Day (GPD)	0.38
Dechlorinator Capacity (GPD)	0 - 10
Model	P131-393SU

EFFLUENT LIFT STATION

Number of Pumps	2
GPM @ TDH	100 @ 34'
HP	5.0
Volts/Phase/Hertz	480/3/60
Manufacturer	Barnes
Pump Model	4SE5044L
Impeller Size (IN)	7.0

EFFLUENT FLOW METER

Type	Transit Time
Totalizer	Yes
Manufacturer	Polysonics
Model	DCT1088

TERTIARY FILTER EFFLUENT DESIGN CONDITIONS

5 Day BOD (mg/l) Maximum 30 Day Average	< 10
TSS (mg/l) Maximum 30 Day Average	< 10
Fecal Coliform (CFU/100 ml)	
4 of Last 7 Daily Samples	None Present
Single Sample Maximum (CFU/100 ml)	23
pH	4.5 - 9
Total Nitrogen - 5 Sample Mean (mg/l)	< 10

APPENDIX D

HYDRO-GEOLOGIC CONSIDERATIONS (SUMMARY FROM APP)

HYDROGEOLOGIC CONSIDERATIONS

Speyer & Associates, P.C. (SA) has prepared the following responses in order to address specific hydrogeologic and geologic criteria as required by statute, pursuant to a complete Aquifer Protection Permit (APP) Application.

EXECUTIVE SUMMARY

Four (4) groundwater wells were installed in the south-westernmost corner (i.e., southwest quarter of the southwest quarter of the southwest quarter) of Section 29 of Township 6 North, Range 1 East of the Gila and Salt River Base and Meridian. Two (2) of these wells, up-gradient well, and cross-gradient well to the west) are to be modified to serve as injection wells for the treated effluent from a waste water treatment plant (WWTP). The WWTP is designed to receive and process approximately 60,000 gallons per day (gpd) of domestic sewage from a residential community located north of the facility (The Estates at Lakeside).

The hydrogeology of this area is affected by the presence of Lake Pleasant behind the Waddell Dam; located north-northeast from the planned underground storage facility (USF). The mound effect, which is sustained by the Lake level, produces a strong north to south gradient, and has created an on-going, persistent rise in local groundwater elevation. This on-going rise is accommodated in the unreasonable harm and hydrologic feasibility analyses presented in this application. An unreasonable harm analysis, designed to assess the position of a 1-foot rise in groundwater elevation, is based on two (2) models (i.e., a hydrologic model, and a pneumatic model) that rely on empirical results collected at the planned facility location. These models demonstrate that it is feasible to sustain an injection rate of 42 gallons per minute (gpm; 60,000 gpd) over the duration of the model (i.e., 20 years). Furthermore, there are no structures, land uses, conditions or facilities that will be located within the maximum AOI calculated for this injection rate over the duration of the model.

In accordance with the Arizona Department of Water Resources (ADWR) and the Arizona Department of Environmental Quality (ADEQ), one (1) of the four (4) wells installed is designated as the facility Point of Compliance (POC), as approved by ADEQ Aquifer Protection Permit (APP) personnel.

R18-9-A202. Technical Requirements

A. Except as specified in R18-9-A201(A)(3), an applicant shall submit the following technical information as attachments to the individual permit application:

1. A topographic map, or other appropriate map approved by the Department, of the facility location and contiguous land area showing the known use of adjacent properties,

all known water well locations found within one-half mile of the facility, and a description of well construction details and well uses, if available;

[See Figures 1 & 2]

2. A facility site plan showing all known property lines, structures, water wells, injection wells, drywells and their uses, topography, and the location of points of discharge. The facility site plan shall include all known borings unless the Department determines that borings are numerous and the requirement may be satisfied by a narrative description of the number and location of the borings;

[See Figure 3]

3. The facility design documents indicating proposed or as-built design details and proposed or as-built configuration of basins, ponds, waste storage areas, drainage diversion features, or other engineered elements of the facility affecting discharge. When formal as-built submittals are not available, the applicant shall provide documentation, sufficient to allow evaluation of those elements of the facility affecting discharge, following the demonstration requirements of A.R.S. § 49-243(B). An applicant seeking an Aquifer Protection Permit for a sewage treatment facility shall submit design documents required in R18-9-B203;

Treated effluent from the WWTP is to be discharged to the aquifer by deep water injection making use of one or the other of two (2) injection wells. Design specifications for these wells are presented as Figure 5.

4. A summary of the known past facility discharge activities and the proposed facility discharge activities indicating all of the following:

- a. The chemical, biological, and physical characteristics of the discharge;*
- b. The rate, volume, and frequency of the discharge for each facility; and*
- c. The location of the discharge.*

No Additional Information.

5. A description of the BADCT to be employed in the facility, including:

- a. A statement of the technology, processes, operating methods, or other alternatives that will be employed to meet the requirements of A.R.S. § 49-243(B), (G), or (P), as applicable. The statement shall describe:*
 - i. The alternative discharge control measures considered,*
 - ii. The technical and economic advantages and disadvantages of each alternative, and*
 - iii. The justification for selection or rejection of each alternative.*
- b. An evaluation of each alternative discharge control technology relative to the amount of discharge reduction achievable, site specific hydrologic and geologic characteristics, other environmental impacts, and water conservation or augmentation;*

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- c. For a new facility, an industry-wide evaluation of the economic impact of implementation of each alternative control technology;*
- d. For an existing facility, a statement reflecting the consideration of factors listed in A.R.S. §§ 49-243(B)(1)(a) through (B)(1)(h);*
- e. The above requirements do not apply if the Department verifies that a sewage treatment facility meets the BADCT requirements under Article 2, Part B of this Chapter.*

No Additional Information.

6. Proposed points of compliance for the facility based on A.R.S. § 49-244. An applicant shall demonstrate that:

- a. The facility will not cause or contribute to a violation of the Aquifer Water Quality Standards at the proposed point of compliance, or*

The discharge is described as Class A+ effluent, to be discharged from the WWTP and injected at one of two locations on the facility property. A background water quality sample has been collected and analyzed (see Attachment A), in order to provide a baseline against which future water quality monitoring may be evaluated to demonstrate conformance with the permit requirements.

- b. If an Aquifer Water Quality Standard for a pollutant has been exceeded in an aquifer at the time of permit issuance, no additional degradation of the aquifer relative to that pollutant and determined at the proposed point of compliance will occur as a result of the discharge from the proposed facility.*

Not Applicable.

7. A contingency plan that meets the requirements of R18-9-A204;

No Additional Information.

8. A hydrogeologic study that defines the discharge impact area for the expected duration of the facility. The Department may allow the applicant to submit an abbreviated hydrogeologic study or, if warranted, no hydrogeologic study, based upon the quantity and characteristics of the pollutants discharged, the methods of disposal, and the site conditions. Information from a previous study of the affected area may be included to meet a requirement of the hydrogeologic study, if the previous study accurately represents current hydrogeologic conditions. The hydrogeologic study shall demonstrate:

Four (4) wells were installed and developed at the Project Site. Details regarding these wells are summarized in Table 1, as follows.

TABLE 1 – SUMMARY OF ON-SITE WELL DETAILS

ADWR No. ¹	Cadastral Location	Facility Id. No.	Well Use	Wellhead Elevation ²	Water Level Measurement ³	Well Construction	Well Pump
55-900445	A(6-1)CCC	Well 101	Injection ⁴	1532.61	Probe	Figure 5	NO
55-900442	A(6-1)CCC	Well 102	POC/Monitoring ⁵	1534.60	Probe	Figure 4	NO
55-900441	A(6-1)CCC	Well 103	Monitoring	1538.96	Probe	Figure 4 (typ.)	NO
55-900439	A(6-1)CCC	Well 104	Injection ⁴	1532.61	Probe	Figure 5	NO

¹Complete Well Driller Report and Well Log presented as Attachment 1 to the USF Application Report submitted to the ADWR (March 31, 2005)..

²Wellhead elevations were surveyed and are expressed in terms of feet (ft.) above mean seal level (amsl).

³A standard, single-phase fluid level probe is used in each well, which is equipped with a sounder tube to well total depth.

⁴Two (2) separate injection/recharge wells are identified; these are to be utilized independently, and not concurrently. A proposed well design diagram is presented as Figure 5.

⁵Well No. 102 is to be utilized as a monitoring point and is the identified Point of Compliance (POC) well pursuant to the Facility APP; as approved by the ADEQ; see Figure 4.

a. That the facility will not cause or contribute to a violation of Aquifer Water Quality Standards at the applicable point of compliance; or

The discharge is described as Class A+ effluent, to be discharged from the WWTP and injected at one of two locations on the facility property. A background water quality sample has been collected and analyzed (see Attachment A), in order to provide a baseline against which future water quality monitoring may be evaluated to demonstrate conformance with the permit requirements.

b. If an Aquifer Water Quality Standard for a pollutant has been exceeded in an aquifer at the time of permit issuance that no additional degradation of the aquifer relative to that pollutant and determined at the applicable point of compliance will occur as a result of the discharge from the proposed facility;

Not Applicable.

c. Based on the quantity and characteristics of pollutants discharged, methods of disposal, and site conditions, the Department may require the applicant to provide:

A description of the surface and subsurface geology, including a description of all borings;

Bedrock & Stratigraphy

The Project Area (see Figures 1 & 6) is characterized by a moderately complex geology involving faulted, brecciated, and eroded Tertiary extrusive igneous rocks, which are overlain and fault-bounded by Quaternary and Tertiary alluvium. The alluvium is divided into two (2) series; an unconsolidated sequence (Younger Alluvium), and an older, Tertiary-Quaternary sequence (see Figure 7).

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The Younger Alluvium consists of loose and unconsolidated sand, gravel, and cobbles, with some boulders and less than 50 percent (%) fines. The Younger Alluvium is confined to the Aqua Fria River channel and nearby, deeply incised distributary channel ravines. Elsewhere, the Younger Alluvium may exist as a thin veneer. The older alluvium consists of loosely consolidated terrace deposits, including rounded to angular lithic clasts, gravels and sand deposits with less than 10 percent (%) boulders, and up to 50 percent fines (silt and clay).

Bedrock beneath the Project Site is extremely complex, and consists of intercalated sedimentary and igneous (extrusive as well as intrusive) rock units, which are faulted, intruded, and displaced. Bedrock lithologies include tuff, andesite, rhyolite, conglomerate, and sandstone. The conglomerate ranges from very hard to soft, with variable densities of fracturing with varied fracture fillings, including clay and secondary precipitates (calcite, gypsum, and/or silica). Tuffs are welded or uncemented; cementation may be carbonate (dolomitic) or siliceous, and are either soft or hard. The western margin of the Project Area, and in an arc extending toward the Waddell Dam Site proper, areas of higher elevation consist of intercalated tuff and rhyolite deposits that are aproned at an elevation of approximately 1600 feet amsl, and lower, by conglomerate deposits.

Four (4) boreholes were advanced in the vicinity of the planned USF; each of these is completed as a groundwater well. Lithologic borehole logs for these wells are presented as Attachment B to this Section. Three (3) of the boreholes were terminated in cemented conglomerate; one (1) of the boreholes (for Well No. 103) was terminated in rhyolite. WRA (1985b) documented that the conglomerate/rhyolite contact varies across the study area, and consists of irregular and unpredictable interfingering and intercalation; see Figure 7.

In all cases, groundwater was first encountered after a cemented rind was perforated, within or without a notable zone of fractures/joints. Once the wells were stabilized, groundwater rose to a level between 10 and 25 feet higher than where first encountered.

Geologic Structure

Although present and mappable (see Figure 6), the impact of faulting in the area of the USF Project is minor and without significant displacement (offset areas typically a few feet only). Fault gouge materials consist of brecciated lithologies and secondary cementation due to seepage and remobilization of carbonate, silicate, and sulfate materials. The surface expression of a southwest-northeast/south-north fault can be walked out on the surface of the planned USF Site, and is manifest as starkly weathered andesite (black due to high manganese content), which marks the higher elevation western margin, and buff to yellow colored conglomerate deposits along the eastern margin of the USF Site and extending to the western margin of the Aqua Fria River channel.

In contrast, the Project Site is abundantly jointed and fractured, particularly in the conglomerate. Joints are narrow to wide, and are completely cemented with calcite, to completely void and open. Joints may be narrowly or widely spaced depending on proximity to more significant fault traces.

Geomorphology

The area in the immediate vicinity of the Project Site, including areas north and south along the western margin of the Aqua Fria River channel display well-developed, dendritic drainage arroyos in parallel series (see Figure 1). These drainage channels approximately coincide with northwest trending joint patterns that, in turn, are approximately perpendicular to northeast-southwest trending high-angle faults.

Relatively level terrace deposits are sporadically present along the east and west margins of the Aqua Fria River channel, but do not occur within the Project Site. The Project Area is characterized by steep and generally rough terrain.

General Overview

There are three (3) primary lithologies in vertical sequence in the vicinity of the USF Project Site; unconsolidated alluvium, consolidated or cemented conglomerates, and extrusive igneous (cf. volcanic) deposits. The local terrain is largely controlled by geologic structures, including northeast trending, high-angle faults, orthogonal joint and fracture sets, and discontinuities along lithologic transitions. Joints are cemented or not.

Figure 7 depicts a stylized cross-section from the vicinity of the USF Project Site, east to the east margin of the Aqua Fria River channel. This cross-section was completed, in part, as support material for a well field installed at the southeast corner of Section 29, Township 6 North, Range 1 East (see Figure 8).

ii. The location of any perennial, intermittent, or ephemeral surface water bodies;

The area including the Planned Facility is dominated by Lake Pleasant, including Lower Lake, which exists behind the New Waddell Dam, and is located north-northeast of the Site. The Aqua Fria River is an intermittent to ephemeral, but well-developed river channel that begins at the foot of the Waddell Dam and continues south-southwest toward Phoenix, Arizona, east of the Site (see Figure 1). In addition, there are several less prominent ephemeral stream channels and erosive features that cross the Site from northwest to southeast, draining to the Aqua Fria River channel (Figure 2).

iii. The characteristics of the aquifer and geologic units with limited permeability, including depth, hydraulic conductivity, and transmissivity;

The distribution of groundwater beneath the Project Site is strongly influenced by the location of the Aqua Fria Channel, and the effect of mounding related to the Lake

Pleasant water body north-northeast of the Site (see Figure 2) and the location of the Agua Fria River channel (see Figure 8).

The source aquifer in the Project Area consists of two (2) units, which interfinger in the vicinity of the Site; a Tertiary conglomerate (Tc), and a rhyolite. Fractures are abundant and extensive within both units as evidenced by pervasive calcitic cementation and secondary mineralization. Deposits east of the Project Area include unconsolidated alluvium in the Agua Fria basin; these materials display a greater permeability, and hydraulic conductivity (see Figure 8).

iv. Rate, volume, and direction of surface water and groundwater flow, including hydrographs, if available, and equipotential maps;

Description of Groundwater & the Aquifer

Determination of Groundwater. The Project Team discovered groundwater in each of the four (4) boreholes advanced during the months of May and June 2004. Groundwater was encountered at a depth of approximately 125 feet below ground surface (bgs) depending on ground surface elevation (see Figure 7). The aquifer is not hydrographically differentiated although it is located in differing lithologies beneath the USF Site and vicinity; groundwater appears to uniformly exist within fracture and joint porosity regardless of the host lithology (see Figure 4).

Several groundwater wells are located north and northeast of the USF Site, at a distance of about one mile or more. In addition, a well field is located approximately one mile directly east of the Site, on the east margin of the Aqua Fria River channel. The location of these wells is indicated on Figure 2.

General Description of Aquifer. Groundwater in the Aqua Fria River channel exists within unconsolidated alluvial deposits at a depth less than 50 feet bgs. The flow parameters and general dynamics of this groundwater differ significantly from aquifer conditions apparent in Tertiary conglomerate and volcanic units in adjacent foothill areas west of the River. Groundwater in the paleo-channel beneath the Aqua Fria River occurs at an overall lower elevation than groundwater in lithologies located to the east and west of the River (e.g., Project Site).

Water Resources Associates (1985b) presents a groundwater elevation contour map and inferred gradient flow parameters, which are based on real-time data collected in 1985 (see Figure 8). Elevation contour isograds trend away from the Lake and reflect an overall depression of groundwater flow gradient away from the River to either side. On-going water level monitoring indicates that groundwater beneath the Project Site is located at about 125 feet bgs.

Aquifer Parameters. Prior to this current application and specific investigations conducted pursuant to this permit process (see Figures 11 through 14), there are no available data regarding the aquifer beneath the Project Site.

Description of the Vadose Zone

The vadose zone thickens and thins across the Project Area and vicinity in response to changes in gross land surface elevation, regardless of changes in lithology. The western margin of the UST Site is characterized by surface exposures of andesite, which exists as the hanging wall of a north-south trending high-angle fault (see Figure 6).

The vadose zone beneath the planned Project Site proper is largely undifferentiated and consists of fractured and jointed, consolidated conglomerate deposits, which are overlain by unconsolidated, loose alluvium (Younger and/or older) within drainage ravines and, as a thin veneer on ravine banks and narrow plateaus. A volcanic rhyolite is present beneath this conglomerate (Tc) and, at certain locations (Borehole No. 103; Attachment B), is host to the regional aquifer. Figure 7 illustrates a cross-section across the USF Site to the Aqua Fria River; these data are derived from Water Resource Associates (1985a), and Western Technologies (1984).

There are no observed or known perched aquifer zones beneath the Project Site.

Description and Map of Current Water Levels

A groundwater contour map for the planned Project Site wells is presented as Figure 9; well construction details are provided in Figures 4 (typical), and 5 (prospective injection well). In addition, well hydrographs for each of the four USF wells are presented as Figure 10.

Mounding in the vicinity of Lake Pleasant, particularly following the construction of New Lake Pleasant in 1992, appears to have resulted in an overall net increase in groundwater elevation since that time. On-going changes that might be reasonably anticipated over the next 20 years have been incorporated into a groundwater impact model, as presented in the sections that follow (see Figures 11, 12, 13, and 14).

Hydrogeologic conditions, including groundwater elevation and general flow direction have remained largely unchanged since the time that the on-site wells were installed (June 2004; see Figures 9 & 10). Although groundwater consistently flows south-southwest beneath the Project Area, the gradient is extremely slight, virtually flat (see Figure 9). Equipotential contours indicate that a gross flow gradient of an approximately $2.5E^{-4}$ foot drop in elevation per linear foot (ft/ft) is evident for June 8, 2004 fluid level data (see Figure 9).

Figure 10 presents compiled groundwater elevation data (June 2004 through December 2004) for each of the four (4) on-site wells, and clearly documents that groundwater elevation at the Project Site is consistent at any one (1) specific well location, and among

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the four (4) well locations. Groundwater elevation data, depth to groundwater data, and wellhead elevation survey determinations are summarized in tables that accompany the well hydrographs (Figure 10). Based on this information, we believe that pump test data, and recovery trends documented at Well No. 102 are relevant and generally applicable to each of the other three (3) wells, in particular Well Nos. 101, and 104 (i.e., injection/recharge wells to be utilized for the Site). Models that are presented and discussed below, and represented in Figures 11 through 14, are based, in large part, on data derived from Well No. 102. Water level data and derived groundwater gradient trends commend Well No. 102 as a down-gradient Point of Compliance (POC) well.

v. The precise location or estimate of the location of the 100-year flood plain and an assessment of the 100-year flood surface flow and potential impacts on the facility;

[See Figure 15]

vi. Documentation of the existing quality of the water in the aquifers underlying the site, including, where available, the method of analysis, quality assurance, and quality control procedures associated with the documentation;

The Project Team consulted with the ADEQ APP Program during the development of an acceptable POC, and in defining baseline groundwater quality conditions pursuant to a pending APP. A discrete water quality sample was collected at Well No. 102 following the extended pump test (June 14, 2004). This sample was analyzed at Aerotech Analytical Laboratories (AEL) for Priority Pollutant Metals (EPA Method E200.7 & E245.1), Volatile Organic Compounds (EPA Method SW8260B), and total Nitrogen as Nitrate (EPA Method E300), in strict conformance with the request of the ADEQ APP Program permit writer assigned to this project.

Table 2 summarizes analytical data for this well water sample. A copy of the complete analytical report is presented as Attachment A to this Application Report.

TABLE 2 – SUMMARY OF WATER QUALITY DATA

Sample ¹	Date	Analytes	Results
6.14.01	6/14/2004	Nitrate	2.7 mg/L
6.14.01	6/14/2004	Priority Pollutant Metals ²	Not Detected ⁴
6.14.01	6/14/2004	Volatile Organic Compounds ³	Not Detected ⁴

¹One (1) discrete groundwater sample was collected from Well No. 102, following a 72-hour pump test on the aquifer.

²Priority Pollutant Metals include Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Nickel, Selenium, Silver, Thallium, Zinc, and Mercury; results are reported in terms of milligrams per Liter (mg/L).

³Volatile Organic Compounds include chlorinated solvents (e.g., tetrachloroethylene), and petroleum industry hydrocarbons; typically reported in terms of micrograms per Liter (ug/L).

⁴No analytes that are typically included on the standard method list were present at standard detection limits (i.e., DF = 1).

vii. Documentation of the extent and degree of any known soil contamination at the site;

None Known. Project Area is remote and has not been previously developed.

viii. An assessment of the potential of the discharge to cause the leaching of pollutants from surface soils or vadose materials;

Discharged water is to be injected into one (1) of two (2) on-site, injection wells. The rate of injection (i.e., approximately 42 gpm) is expected to result in a hydraulic mound in the vicinity of the wells. The extent and potential area of impact related to this mound is treated in a comprehensive Underground Storage Facility Permit application issued to the Arizona Department of Water Resources (ADWR). The results of these models are discussed elsewhere in this APP application.

There is no known vadose or near-surface soil contamination in the vicinity of the facility. The mound is not expected to rise more than 10 feet within the injection wells, and decrease in overall elevation from these locations.

ix. Any anticipated changes in the water quality expected because of the discharge;

The WWTP is designed to receive domestic wastewater from a residential wastewater collection system that is designed to serve The Estates at Lakeside subdivision (see Figure 1). The residential community and the collection system are isolated facilities and, therefore, there is no possibility that any commercial or industrial wastes might be collected into the system.

The effluent is to be treated to an A+ Quality prior to discharge; the process involves chlorination and dechlorination, and it is not anticipated that the discharge of treated water will in any way result in a degradation of existing groundwater quality.

x. Description of any expected changes in the elevation or flow directions of the groundwater that may be caused by the facility;

As mentioned previously, treated effluent from the WWTP is to be injected directly into the aquifer at a depth of approximately 110 feet bgs. A maximum injection flow of approximately 42 gpm (60,000 gpd) is anticipated at full community development. The planned USF Site is to include two (2) injection/recharge wells, which are to be operated independently of, and not concurrently with, each other; Well Nos. 101 and 104 (see Figure B2.6) These wells are designed to discharge treated domestic wastewater to the local aquifer.

A groundwater flow model was developed for the Project Area, including provisions for the anticipated injection rate. The model is designed to evaluate the maximum area of impact (AOI), and to adequately demonstrate that the Project Site is an appropriate location for *in situ* injection (i.e., recharge) of treated domestic wastewater. We present two (2) basic models in order to address these requirements; (1) a comprehensive, traditional MODFLOW™ model analysis, consistent with industry standard that is designed to determine the impacted areas affected by the Project, and (2) an analytical

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model that is designed to evaluate the feasibility of injecting a prescribed volume of water at a regulated rate pursuant to the design criteria of the WWTP (see Attachment C).

xi. A map of the facility's discharge impact area;

[See Figure 13]

xii. The criteria and methodologies used to determine the discharge impact area; or

Modeling efforts address two concerns; first, that a hydraulic mound, related to recharge operations will not result in an "unreasonable harm," and, second, that the existing aquifer can support Project design criteria in terms of volume of water to be recharged per unit time.

Under the regulations, and in accordance with guidance provided by the ADWR, the area of mounding after 20 years must be delineated to the limit of the 1-foot rise in water level (see Figure 13). Within this area of impact (AOI), potential effects of mounding on existing structures, land uses, and facilities must be identified. In addition, all wells within one (1) mile of the Project Area must be identified (see Figure 2).

The model described in this report is a representation of a selected volume of the groundwater system that has approximate dimensions of four (4) miles on an edge, and that is approximately centered on the location of the proposed primary injection well (Well No. 104; see Figure 11). The model boundaries were selected to represent most accurately the conditions in the predicted AOI. Model boundaries extend well beyond the AOI to reduce the effects of boundary conditions.

One injection well, Well 104, was used for the model; all hydrologic criteria are based on the results of a pump test conducted at the Well No. 102 location. The injection rate at Well 104 is the planned design flow of the wastewater treatment plant, 42 gpm (60,000 gpd). Two (2) other nearby wells are potential injection wells, but were not included in the model. If the total flow was divided and discharged into two (2) or three (3) wells, instead of one (1), the model predictions and AOI would not change appreciably. Likewise, if recharge flow was diverted to another well location (e.g., Well No. 101) the results of the model would not significantly change.

The model was calibrated to the period from the mid-1980s to 2004. This is the period of time for which any water-level data are available. Predictions were run for the period from 2005 to 2025, which is 20 years after the proposed start of injection (see Figures 13 and 14).

There is a paucity of applicable water level data for the area including the Project Area (see Figure 2). Consequently, the precision of the model may be limited. Nevertheless, model results provide a useful and arguably accurate set of calculations that summarize available, site-specific data in order to understand the prospective status of groundwater

and groundwater flow during the operation of the planned WWTP and effluent injection system.

xiii. The proposed location of each point of compliance.

One (1) Point of Compliance (POC) well is identified based on discussions with the APP permit manager assigned by the ADEQ. Well No. 102, which is located at the down-gradient margin of the property, immediately adjoining State land to the south, is the permit POC (see Figure 9). Well No. 103 is identified as an alternate monitoring well that is to be used, as warranted, to monitor groundwater elevation, and gradient.

9. A detailed proposal indicating the alert levels, discharge limitations, monitoring requirements, compliance schedules, and temporary cessation, closure, and post-closure strategies or plans that the applicant will use to satisfy the requirements of A.R.S. Title 49, Chapter 2, Article 3, and Articles 1 and 2 of this Chapter;

SA has responded only to those elements of this requirement that pertain to the well installation(s), including the POC well, monitoring well, and injection wells.

Monitoring Plan Design

The critical components of a monitoring plan for the planned USF were developed in consultation with the APP permit-writer assigned to this project by the ADEQ. The Project Site consists of four (4) wells that were installed and tested in 2004. One (1) of these wells is to be utilized as a primary injection/recharge well (i.e., Well No. 104; see Figures 5 and 9). A second well (Well No. 101) is to be used as a secondary, redundant injection/recharge well (see discussion below; Figure 5). In addition, Well No. 101 is to be used as a cross-gradient monitoring well for tracking water level and, as appropriate, water quality during the life of the planned USF. Well Nos. 102 (POC) and 103 are to be used for purposes of monitoring water levels and quality.

Water Level Monitoring

- Four (4) wells are located at the proposed USF. The locations of these wells are identified on numerous figures included with this Application Report; see Figure 9 for well location and inferred groundwater gradient.
- Groundwater level is to be monitored at all four (4) wells, at least one time each month during the period that the WWTP is operated. These data will be utilized to derive monthly gradient information, and assess Alert Level conformance, as discussed in sections that follow.

TABLE 3 – PROPOSED WATER MONITORING PLAN

MONITORING PLAN	PARAMETER	ANALYTICAL METHOD	FREQUENCY
Water Level	Water Level	Electronic Slope Indicator ¹	1/month
Water Quality • Source (WWTP) ³ • Recharge (USF) ³	Nitrogen as Nitrate	EPA Method E300	1/three months
	Coliform Bacteria – Total	Standard Method 9221 (P/A) ²	1/three months
	Coliform Bacteria - Fecal	Standard Method 9221 (P/A) ²	1/three months
	Volatile Organic Compounds	EPA Method SW8260B	1/six months
	Priority Pollutant Metals	EPA Methods E200.7 & E245.1	1/six months

¹Water level is to be measured in each well using a single-phase water level probe with electronic light and sound indicators; probe is to be placed into sounder tube of each well.

²The Monitoring Plan requires that the presence and absence of Fecal and Total Coliform bacteria be measured. In the event that Fecal and/or Total Coliform Bacteria are determined to be present, it may be advisable to analyze the water sample in accordance with Standard method 9222, which consists of a membrane filtration of the sample and counts of bacteria to determine density per unit volume.

³Figure 3 illustrates the basic design for the planned WWTP; influent and effluent flow direction are indicated. The quality of treated effluent is to be monitored, as per Table 4. In addition, the POC (Well No. 102) for the Project is to be monitored in accordance with the authorized USF Permit.

The AOI assessment (see Figures 13 and 14) indicate that, after 20 years of operation (assuming a sustained operational criterion of 42 gpm), a one-foot rise in the elevation of groundwater is expected at an average distance of one-half mile away from the primary recharge well (Well No. 104). This corresponds to a maximum model increase of about 18 feet in groundwater elevation at the recharge well location proper (including natural groundwater rise related to head pressure at the New Waddell Dam).

Any determination of appropriate AL criteria is predicated on the understanding that there exists a groundwater elevation that, if attained, would result in a potential unreasonable harm to a facility, structure, or condition. There are no facilities, structures, or conditions within a one (1) mile radius of the Project Site; therefore, there is no recognized condition for which an imminent threat or risk of impact might require a specific corrective action plan. Nevertheless, it is appropriate and reasonable to assign working Alert Levels (ALs), with corresponding corrective actions.

Water Level ALs are specified on the basis of a 30 foot rise in groundwater elevation, *above* the maximum model values (as presented in Figure 13 of this APP Application Report). An exceedance of this elevation [i.e., decrease in depth to groundwater at any

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one (1) of the four (4) well locations] is considered to be sub-critical and is to be corrected by first diverting recharge water to an alternate, completely redundant injection well.

TABLE 4 – ALERT LEVELS FOR WATER LEVEL

WELL NO.	AVG. DTGW¹	OPS DTGW²	ALERT LEVEL³
101	124 ft	104 ft	70
102	110 ft	90 ft	55
103	115 ft	95 ft	60
104	108 ft	88 ft	50

¹Measured over the period of June 2004 through December 2004; averaged to the nearest foot below ground surface (bgs).

²Operations Depth to Groundwater (OPS DTGW) based on model presented in text and illustrated by Figures 13 and 14.

³Alert Levels (AL) are assigned in terms of feet below ground surface (bgs). Limits are approximately based on an estimated elevation value (amsl), which, in turn, is based on the elevation of groundwater at these well locations.

It is reasonable, on the basis of Project System design and presented model results, to presume that a rise in groundwater elevation at the recharge well location would be due to fouling of the well's ability to disperse recharge water. Initial recharge at Well No. 104 is to be by gravity, and, although provisions for pressure injection are included in the WWTP System design, it is not anticipated that pressure injection will be necessary for some time into the future of start up of the System. At such time as permeability in the formation immediately surrounding the well is decreased, this condition may be corrected by increasing the pressure at which effluent is injected into the aquifer. Alternatively, decreased permeability at the well may be corrected by rehabilitating the affected well following diversion of recharge water to the alternate well (e.g., Well No. 101).

TABLE 5 – ACTION PLAN FOR WATER LEVELS

FREQUENCY	ACTION PLAN
Within 48 hrs of Discovery	<ul style="list-style-type: none"> • AL INCIDENT – increase pressure at which effluent is injected at the point of recharge. In the event that a risk is not averted by increasing head pressure at the well, divert effluent (recharge source water) from affected well to alternate, redundant well; divert from Well No. 104 to Well No. 101. • As warranted under the provisions of the authorized USF Permit¹, divert effluent (recharge source water) from recharge well to on-site, lined retention facilities. At such time as water levels decrease to operational groundwater level (OPS Lvl), recharge water is to be diverted to one or the other Recharge Well (Well No. 104 or Well No. 101). • Notify the ADEQ and the ADWR of the AL being reached.
Daily	<ul style="list-style-type: none"> • Measure water levels during course of corrective action, and for two (2) weeks following.
Weekly	<ul style="list-style-type: none"> • Report water level measurement data to ADWR; during period that the AL is reached, and for two (2) weeks thereafter.
Two (2) Weeks	<ul style="list-style-type: none"> • Present detailed report of incident to the ADWR.¹

¹A complete Underground Storage Facility (USF) Permit Application has been submitted to the Arizona Department of Water Resources (ADWR); see Attachment D.

In the event that a critical Operations Prohibition Limit (OPL; see ADWR USF Permit Application) has been exceeded, effluent is to be diverted to a lined retention impoundment that is designed to retain a volume of up to five (5) days of treated effluent that is discharged at the maximum operating capacity of the WWTP (i.e., 42 gpm). Both injection wells, and, as appropriate, the local aquifer, are to be rehabilitated in order that a necessary volume of recharge might be received and dispersed.

Water Quality Monitoring

- Groundwater quality is to be monitored at an established Point of Compliance (POC), as specified and approved by the ADEQ, pursuant to this APP Application. Well No. 102 is located down-gradient from the primary recharge well (Well No. 104), and at the approximate southern property boundary with federal land. As appropriate, and directed by the Monitoring Plan, water quality may also be monitored at Well No. 101 and/or 103.
- Groundwater elevation is to be monitored at the POC well (Well No. 102) once every three (3) months (i.e., quarterly), or as otherwise directed by the authorized APP.
- It is anticipated that the frequency of monitoring will be decreased to semi-annual (i.e., every six months), and permit requirements, as authorized by the ADEQ, will be appropriately revised once conformance with water quality has been established.

TABLE 6 – ALERT LEVELS FOR WATER QUALITY

WELL NO.	PRIORITY POLLUTANT METALS	VOLATILE ORGANIC COMPOUNDS	COLIFORM BACTERIA	NITROGEN AS NITRATE
102 ¹	In accordance with Aquifer Water Quality Standards; Title 18, Chapter 11 of the Arizona Administrative Code (AAC). ²	In accordance with Aquifer Water Quality Standards; Title 18, Chapter 11 of the Arizona Administrative Code (AAC). ²	In accordance with Aquifer Water Quality Standards; Title 18, Chapter 11 of the Arizona Administrative Code (AAC). ²	In accordance with Aquifer Water Quality Standards; Title 18, Chapter 11 of the Arizona Administrative Code (AAC). ²

¹ Well No. 102 is designated as the Point of Compliance (POC) well, as approved and authorized by the ADEQ APP Unit during a Pre-Application meeting (April 14, 2004).

² Numeric Aquifer Water Quality Standards pursuant to Protected Drinking Water Use.

The WWTP is designed to receive and treat domestic wastewater from a residential development (The Estates at Lakeside) only, the development is located in the west half of Section 29 of Township 1 North, Range 1 East. Treated effluent is to be discharged to the aquifer via one or the other of two (2) injection wells.

Hydrogeologic Considerations

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The Estates at Lakeside

Lake Pleasant Area, Arizona

April 5, 2005

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Water Quality limits are based on drinking water standards as promulgated by the State of Arizona and specified In Title 18, Chapter 11 of the Arizona Administrative Code (AAC). An exceedance of a pertinent water quality limitation is to be confirmed by redundant sampling for the analyte of concern only. Additional sampling is to be conducted at one (1) or more of the non-POC wells (i.e., Well Nos. 101, 102, and 103), and, as appropriate, at water source wells that are located approximately one (1) mile east of the WWTP facilities.

Continued, on-going exceedance of a pertinent water quality limitation may be considered to be a System Incident, and will require that regular monitoring of water quality and appropriate fate and transport modeling is conducted while the system process is corrected. In an extreme circumstance (i.e., System Incident) the System may be shut down, to be coordinated and mediated by first diverting effluent to an engineered holding impoundment. All mitigation and corrective actions are to be coordinated with the appropriate State and local agencies.

TABLE 7 – ACTION PLAN FOR WATER QUALITY

FREQUENCY	ACTION PLAN
Within 48 hrs of Discovery	<ul style="list-style-type: none"> • SYSTEM INCIDENT – Divert effluent (recharge source water) from recharge well to on-site, lined retention facilities, pending confirmation that an Limitation has been exceeded. At such time as water quality no longer exceeds applicable OPLs, or a contingency arrangement has been met with the ADWR¹, recharge water is to be diverted to one or the other Recharge Well (Well No. 104 or Well No. 101). • Notify ADEQ and ADWR of the Incident. Present a detailed report to the appropriate State agencies within two (2) weeks of the incident.
Within Five (5) Days	<ul style="list-style-type: none"> • Collect a sample of the effluent from the Source Water to the USF (i.e., at well head, upstream from recharge). • Collect a verification sample from the POC well (Well No. 102). • These water samples are to be analyzed with regard to the analyte in question only. • In the event that the AL is exceeded and on-going monitoring (weekly) indicates that exceedance of the applicable Limit is imminent, follow protocol for a System Incident (see above), unless otherwise indicated or arranged with the ADWR.¹
Monthly	<ul style="list-style-type: none"> • On-going water quality sampling for the monitoring of analyte(s) of concern drop below the applicable AL.
Monthly	<ul style="list-style-type: none"> • Present a report of all analytical results to the ADWR until water quality is consistent with applicable ALs.¹

¹ A complete Underground Storage Facility (USF) Permit Application has been submitted to the Arizona Department of Water Resources (ADWR); see Attachment D.

Water Quantity Monitoring

The quantity of domestic sewage entering and leaving the WWTP will be monitored utilizing a flow meter, recorder, and totalizer system. The influent structure, and the

effluent lift station will be equipped with these electronic measuring devices (see Figure 3). These two (2) monitoring locations capture all flow volume for the influent stream leading from the residential development (The Estates at Lakeside; influent structure), and the effluent stream, which leaves the treatment system and is discharged at one or the other injection/recharge well (Well Nos. 104, or 101; effluent lift station).

The design engineer has chosen the DCT6488 Multi-Channel Transit Time Flowmeter, manufactured by Peek Measurement, to provide continuous multi-plexed flow measurement for multiple locations.

TABLE B6.4 – WATER QUANTITY MONITORING

PARAMETER	DEVICE	LOCATION	IDENTIFIER	FREQUENCY
Influent Domestic Sewage	DCT6488 Flowmeter ¹	T1N, R1E Section 29CCC	TO1	Continuous
Class A+ Treated Effluent	DCT6488 Flowmeter ¹	T1N, R1E Section 29CCC	TO2	Continuous

Operation and Maintenance of the Injection Well System

The following protocols are presented as an Operations & Maintenance Plan for the proposed USF. These are intended to supplement the more comprehensive Operations & Maintenance manual provided pursuant to operation of the WWTP.

- Well Nos. 101 and 104 are to be enhanced to conform to a design plan presented as Figure 5; wells are already installed and have been monitored on a regular basis since June 2004.
- Pump operation at the Lift Station (see Figure 3) is to be monitored and periodically reported. Pump maintenance is addressed in the WWTP system Operations & Maintenance Manual.
- Totalized volume measurements at influent to WWTP, and at effluent (i.e., source; upstream from point of recharge) are to be reported on a weekly basis. These values are to be compared to the WWTP design specifications, as presented in this Permit Application Report (i.e., 42 gpm).
- Injection well pressure gauges are to be monitored on a weekly basis. Pressure gauges are located at upstream and downstream from a gate valve, as well as on the sounding tube; see Figure 5.
- Depth to water at each of the four (4) well locations is to be monitored on a monthly basis, unless otherwise indicated.

EXHIBIT 13

Hydrogeologic Considerations

Aquifer Protection Permit (APP)
The Estates at Lakeside
Lake Pleasant Area, Arizona

Speyer & Associates, P.C.

April 5, 2005

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- Periodically (once per year), or more frequently as otherwise required in response to an AL exceedance of System Incident, the affected injection well is to be rehabilitated by appropriate mechanical, pneumatic, and/or chemical measures.
- During the course of rehabilitating an affected recharge well, the effluent is to be diverted to the alternate recharge well. In the event that both of the recharge wells are to be rehabilitated, or the local aquifer is to be treated for purposes of expanding the recharge field, effluent may be captured in engineered retention impoundments for a period of not more than five (5) days at full design capacity.
- Influent (i.e., water source) and aquifer water quality (i.e., POC) is to be monitored on a quarterly basis, or as otherwise stipulated by the authorized Aquifer Protection Permit (APP).
- Monitor data (water level, water quality, and water quantity) are to be managed in an appropriate spreadsheet system, such as MS-EXCEL so that changes in base parameters may be tracked and trends or patterns recognized.

10. Any other relevant information required by the Department to determine whether to issue a permit.

Not Applicable.

REFERENCES CITED & CONSULTED

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Pearthree, P.A., and R.B. Scarborough, 1984. Reconnaissance Analysis of Possible Quaternary Faulting in Central Arizona. Arizona Geological Survey, Open-File Report 85-4, 27 p.

EXHIBIT 13

Hydrogeologic Considerations

Aquifer Protection Permit (APP)

The Estates at Lakeside

Lake Pleasant Area, Arizona

Speyer & Associates, P.C.

April 5, 2005

Page 19 of 19

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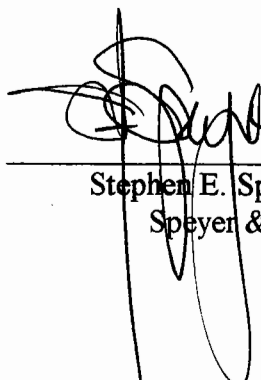
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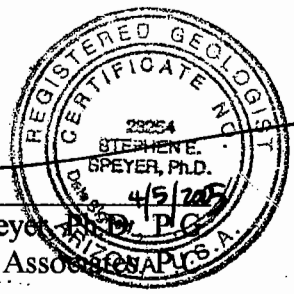
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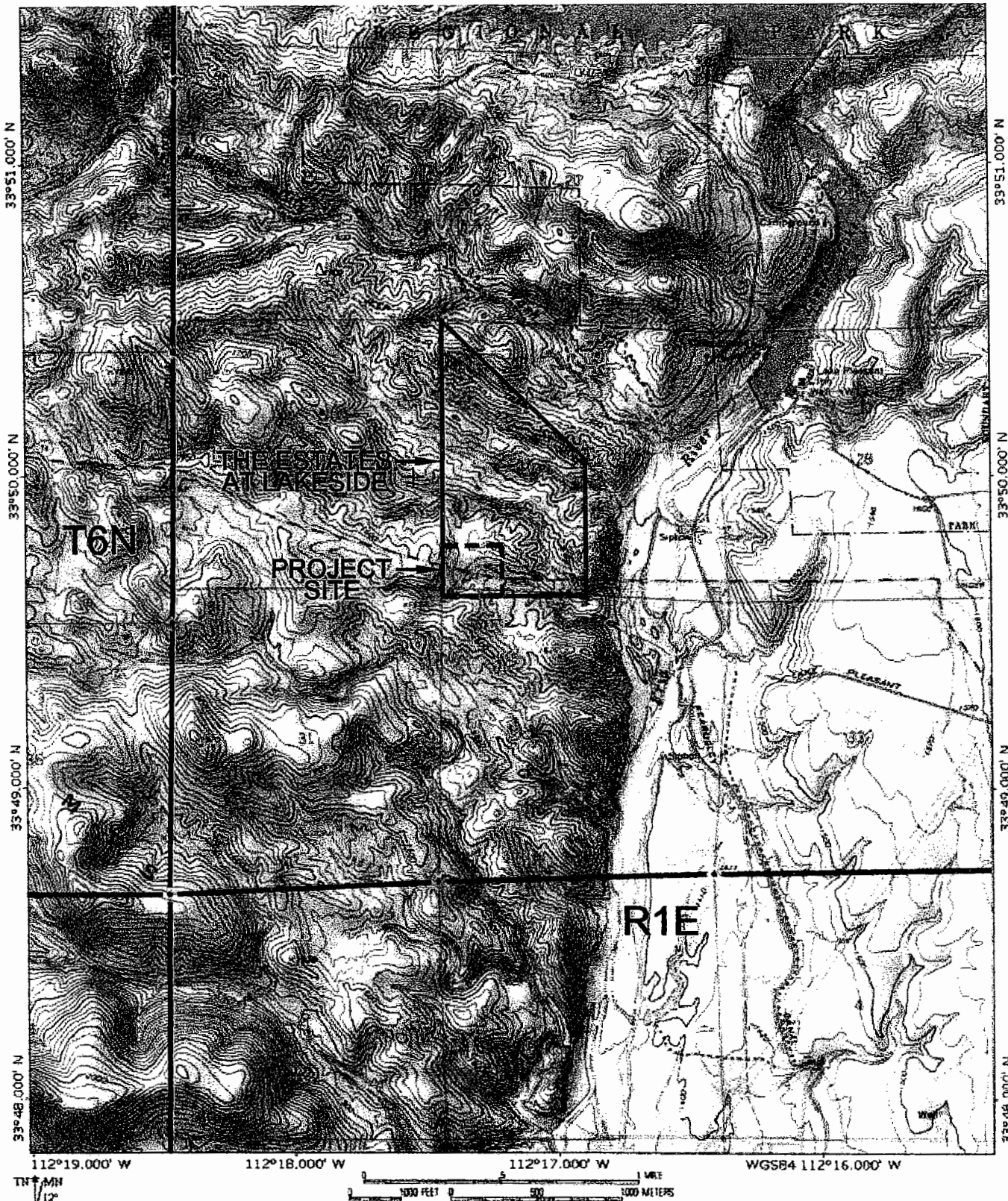
Water Resources Associates, Inc., 1985b. Lake Pleasant Associates Formal Response to Arizona Department of Water Resources Letter of August 12, 1985. Consultants Report (September 13, 1985).

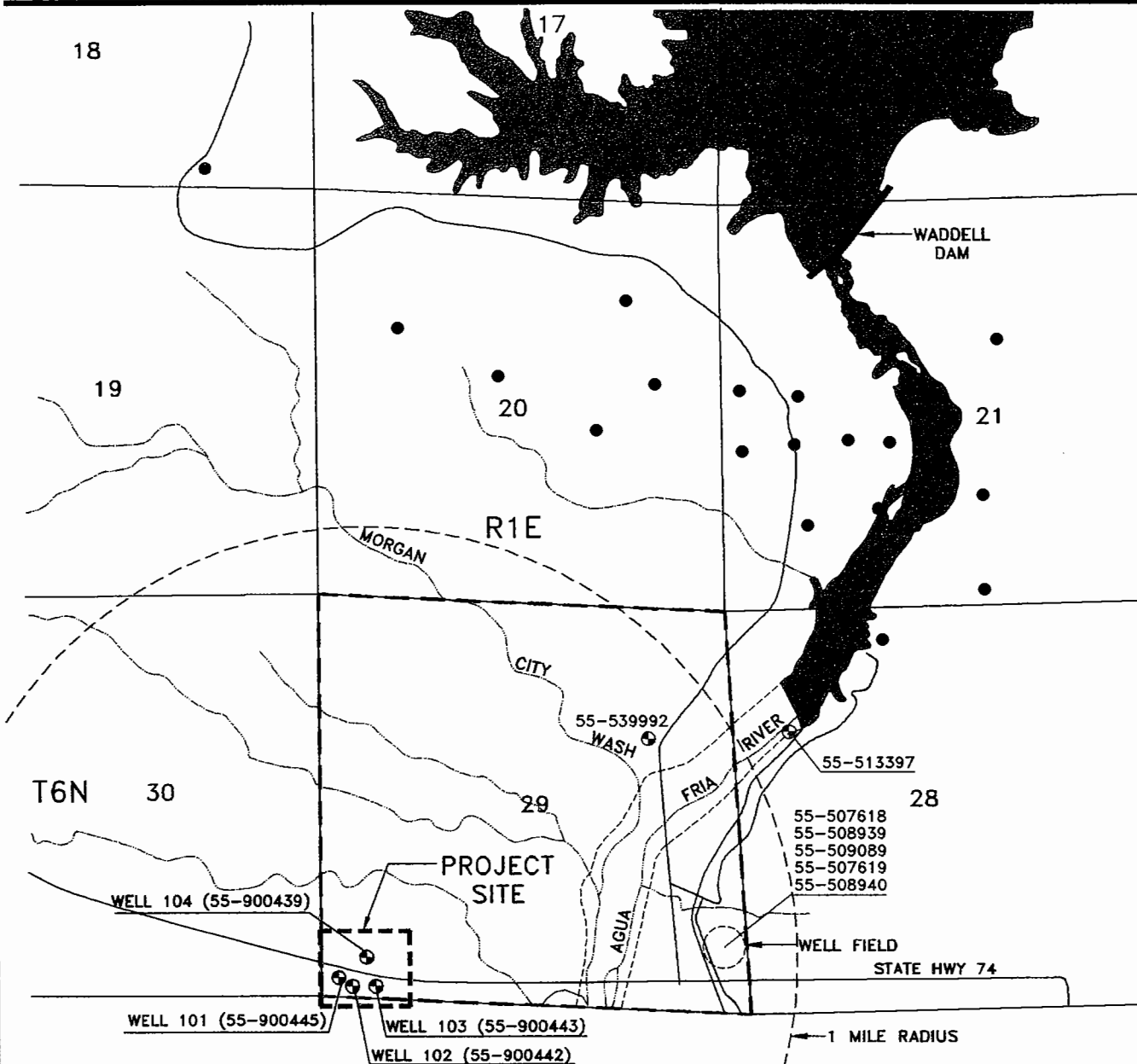
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Stephen E. Speyer, P.C.
Speyer & Associates, P.C.



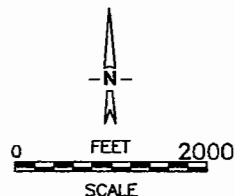
FIGURES





LEGEND

- TOWNSHIP 6 NORTH, RANGE 1 EAST SECTION 29 BOUNDARY
- WELL FIELD
- ~ INTERMITTENT EPHEMERAL STREAM, WASHES, AND ERODED CHANNELS
- - - AGUA FRIA RIVER BANK LINE
- LOCATION OF WELLS AND CORRESPONDING ADWR REGISTRATION NUMBER (SEE FIGURES 4 & 5: ATTACHMENT B)
- LOCATION OF WELLS WITHIN 1-MILE RADIUS OF USF PROJECT SITE; ADWR REGISTRATION NUMBER
- LOCATION OF WELLS OUTSIDE 1-MILE RADIUS OF USF PROJECT SITE



SOURCES: SPEYER & ASSOCIATES, P.C., 2005
ADWR WELL INVENTORY (2004)
USGS 7 1/2 MIN. QUADRANGLE - BALDY MTN., AZ

SPEYER & ASSOCIATES, P.C.

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Gilbert, Arizona 85234
(602) 432-3525; (480) 854-9435 fax

SITE MAP - WELL INVENTORY
AQUIFER PROTECTION PERMIT (APP) APPLICATION
THE ESTATES AT LAKESIDE
LAKE PLEASANT, ARIZONA

PREPARED BY:
S. SPEYER
APPROVED BY:
S. SPEYER
PROJECT NO.:
2004.019.01.04

DATE:
3/2005
FIGURE NO.:
2

**Lake Pleasant
Injection and/or Monitoring Well(s)
Summary Logs for Boreholes**

**Speyer &
Associates, P.C.**

(T6N R1E Sec29 SW¼ SW¼ SW¼)
Total Well Depth 163 ft bgs

**LOG OF WELL CONSTRUCTION
NO. Monitoring Well (POC) 102**

RIG TYPE	CME - 850
BORING TYPE	Air Rotary
SURFACE ELEVATION	1536.96
DATE DRILLED	5/18/04 to 6/4/04
DRILLER	Yellow Jacket Drilling (ADWR Lic. No. 78)
LOGGED BY	S Speyer
DRAWN BY	J.L.

ADWR 55-900442

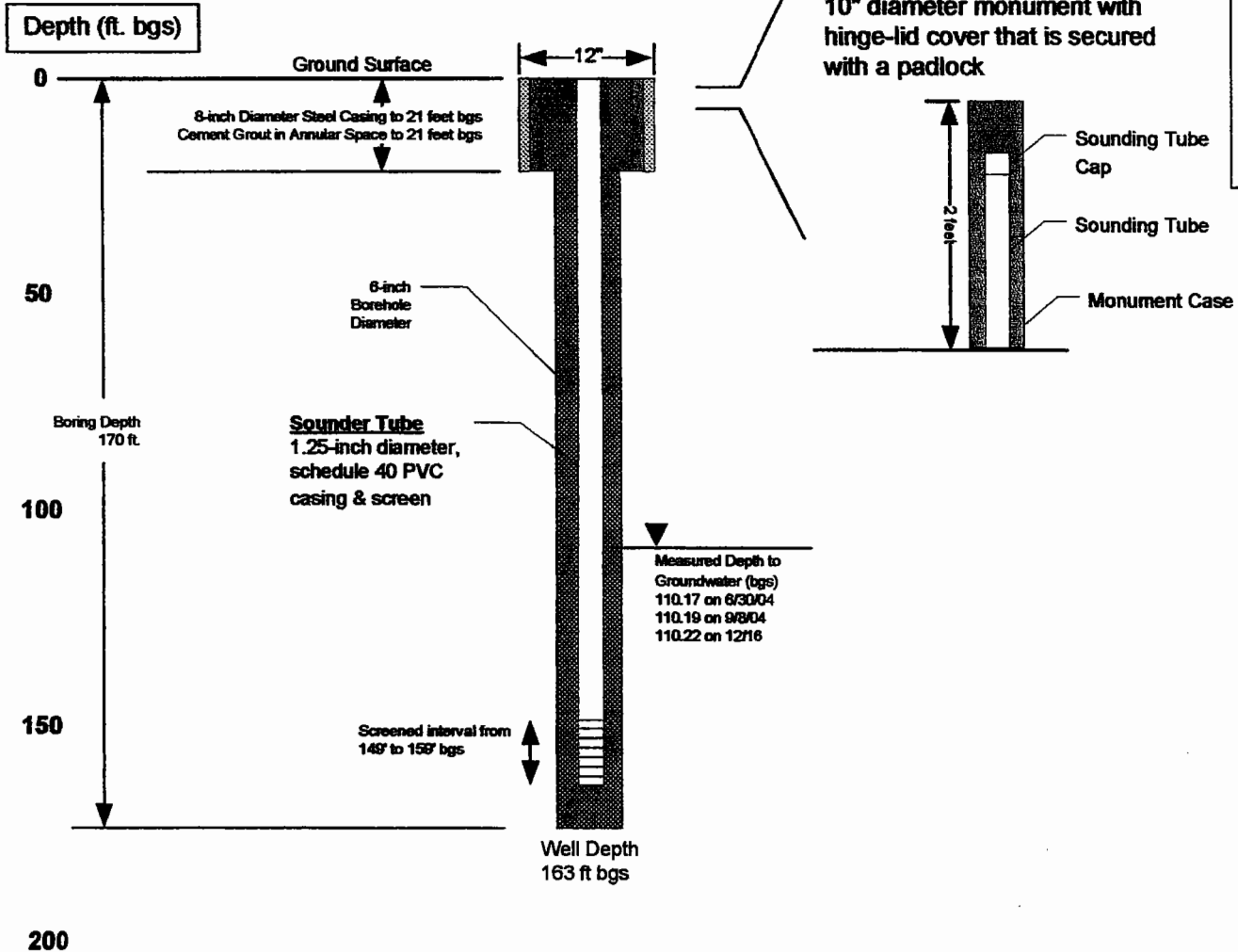
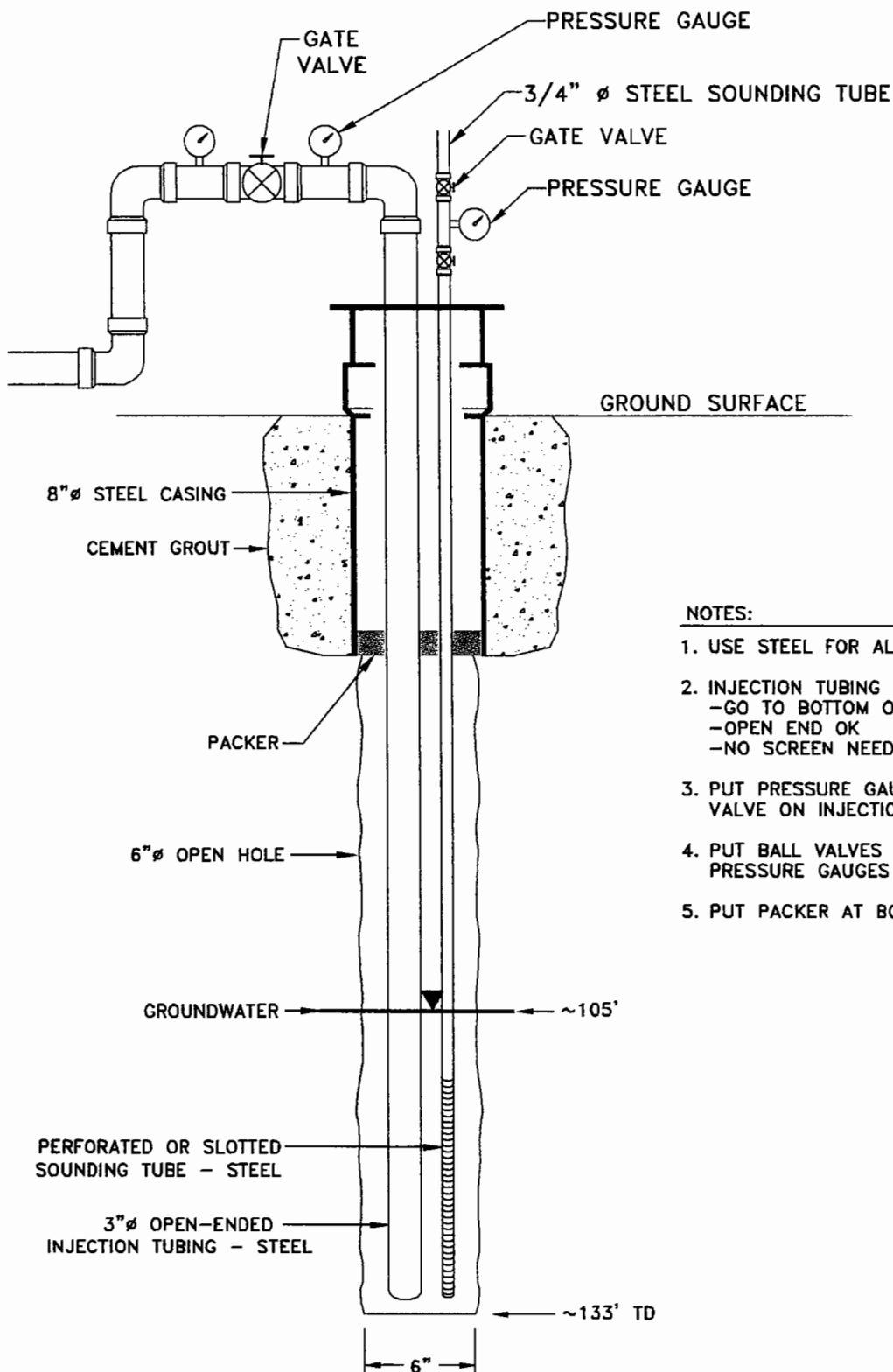


FIGURE 4

Comments

- 1) No casing perforation.
- 2) No casing installed below 21 feet bgs.
- 3) No well development.
- 4) No reduction points
- 5) The borehole was drilled to 170' bgs but due to collapse only remained open to 163' bgs.

Not to Scale
Vertical Scale as Shown For Well



NOTES:

1. USE STEEL FOR ALL TUBING
2. INJECTION TUBING MUST BE SUBMERGED
-GO TO BOTTOM OF WELL
-OPEN END OK
-NO SCREEN NEEDED
3. PUT PRESSURE GAUGES ON EACH SIDE OF VALVE ON INJECTION TUBING
4. PUT BALL VALVES ON EACH SIDE OF PRESSURE GAUGES ON SOUNDING TUBE
5. PUT PACKER AT BOTTOM OF STEEL CASING

SOURCE: SPEYER & ASSOCIATES, P.C., FIELD NOTES, 2004

NOT TO SCALE

**SPEYER &
ASSOCIATES, P.C.**

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WWTP EFFLUENT INJECTION WELL
AQUIFER PROTECTION PERMIT (APP) APPLICATION
THE ESTATES AT LAKESIDE
LAKE PLEASANT, ARIZONA

PREPARED BY:
S. SPEYER

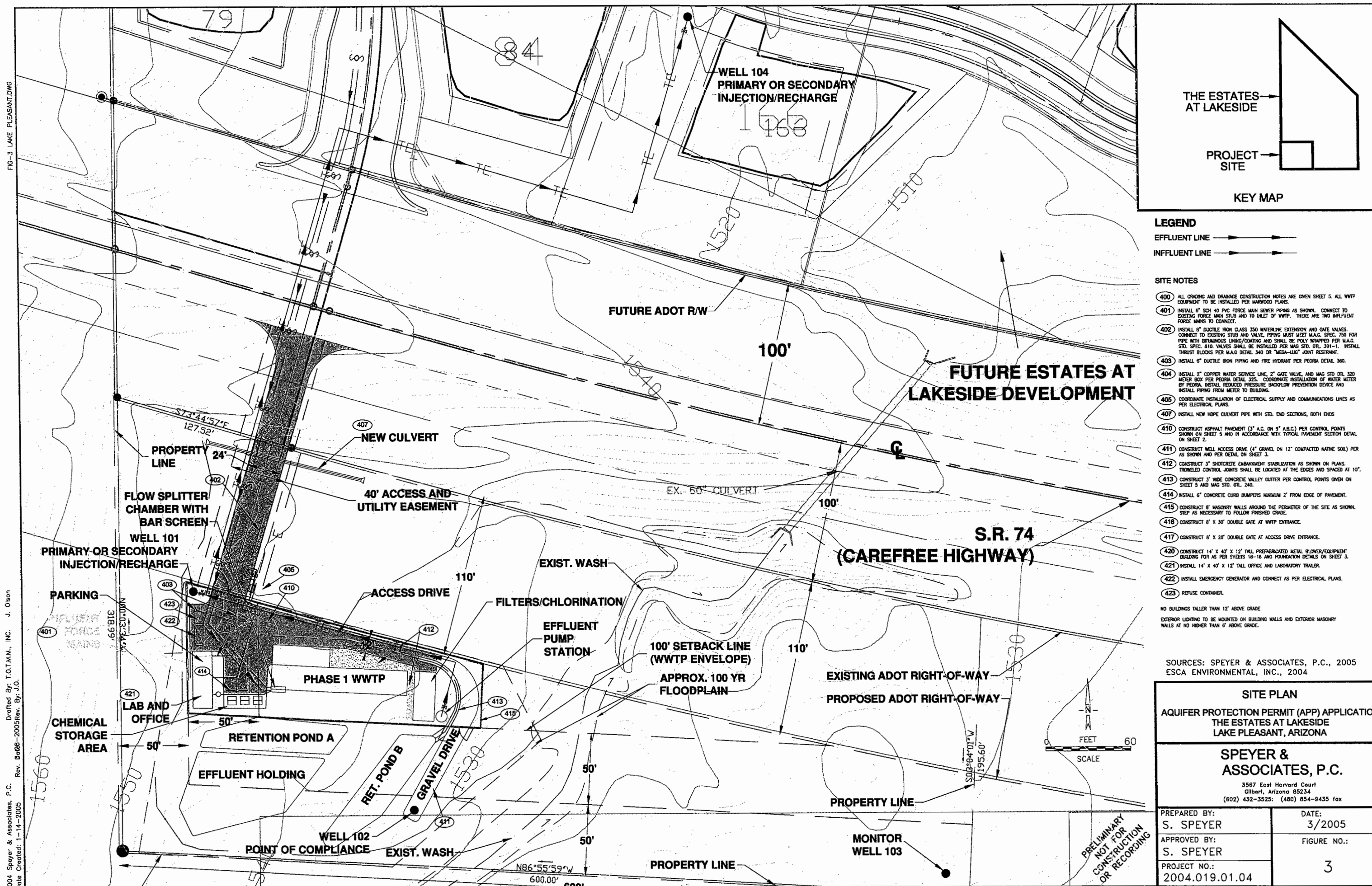
APPROVED BY:
S. SPEYER

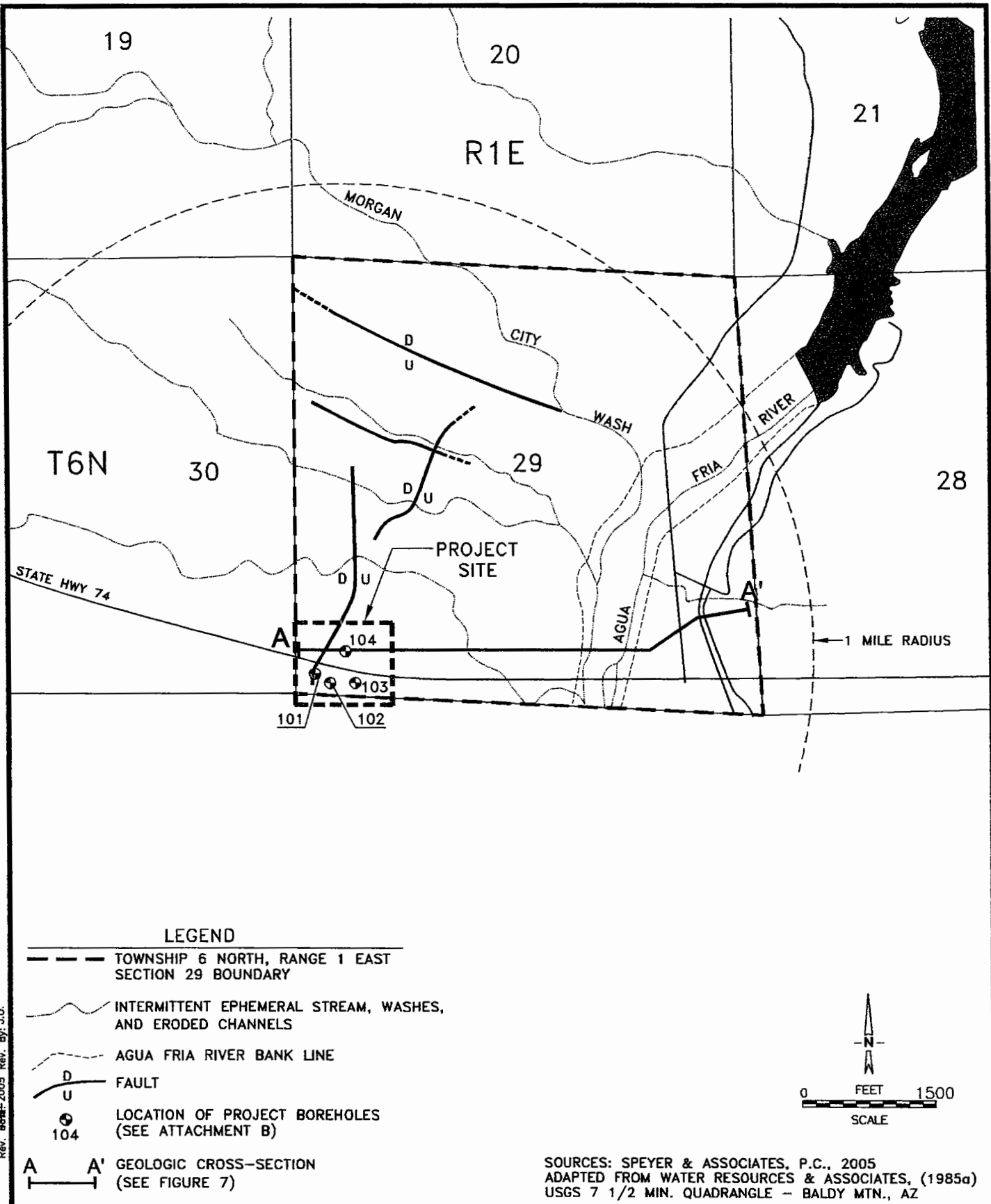
PROJECT NO.:
2004.019.01.04

DATE:
3/2005

FIGURE NO.:

5



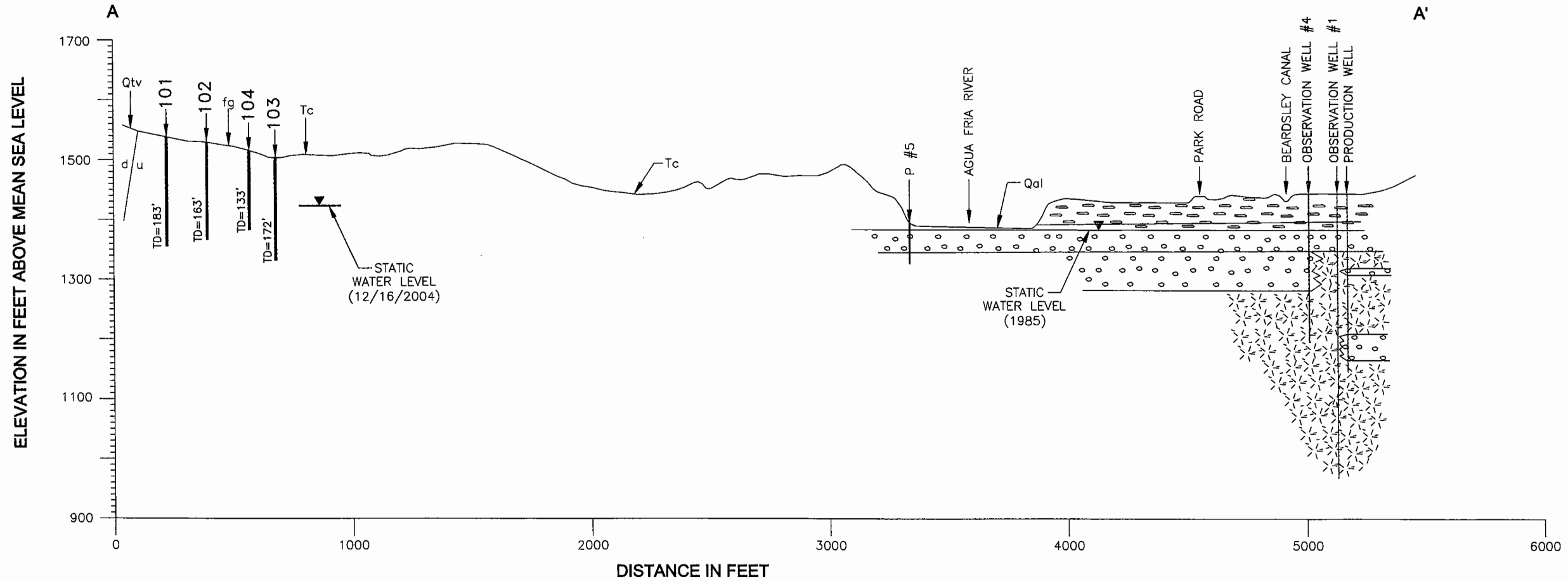


SPEYER & ASSOCIATES, P.C.

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SITE MAP - GEOLOGY
AQUIFER PROTECTION PERMIT (APP) APPLICATION
THE ESTATES AT LAKESIDE
LAKE PLEASANT, ARIZONA

PREPARED BY: S. SPEYER	DATE: 3/2005
APPROVED BY: S. SPEYER	FIGURE NO.:
PROJECT NO.: 2004.019.01.04	6



LEGEND

fg FAULT GOUGE
Qal ALLUVIUM
Qtv ANDESITE
Tc CONGLOMERATE SANDSTONE

TERRACE DEPOSITS
RHYOLITIC ROCK
CONGLOMERATE

"WELL FIELD" (WRA, 1985b)

PLANNED USF WELL LOCATIONS

0 FEET 500
SCALE

SOURCES: SPEYER & ASSOCIATES, P.C., 2005
SURFACE GEOLOGY; WESTERN TECHNOLOGIES, INC. (WRA, 1985)
ADAPTED FROM WATER RESOURCES ASSOCIATES, INC., 1985b
USGS 7 1/2 MIN. QUADRANGLE - BALDY MTN., AZ

**SPEYER &
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HYDROGEOLOGIC CROSS-SECTION
AQUIFER PROTECTION PERMIT (APP) APPLICATION
THE ESTATES AT LAKESIDE
LAKE PLEASANT, ARIZONA

PREPARED BY:
S. SPEYER

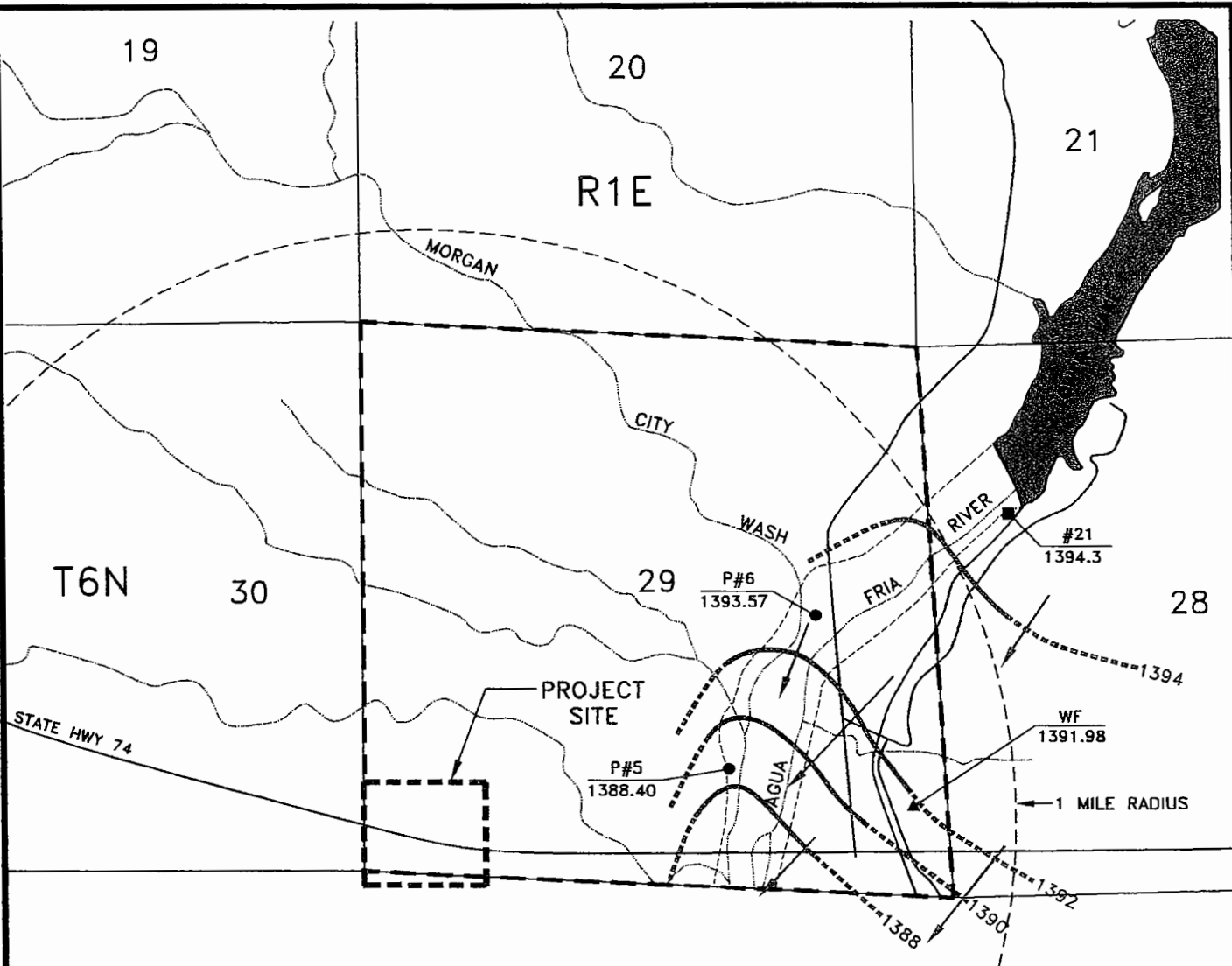
APPROVED BY:
S. SPEYER

PROJECT NO.:
2004.019.01.04

DATE:
3/2005

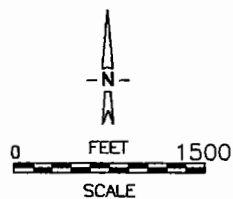
FIGURE NO.:

7



LEGEND

- TOWNSHIP 6 NORTH, RANGE 1 EAST SECTION 29 BOUNDARY
- ~ INTERMITTENT EPHEMERAL STREAM, WASHES, AND ERODED CHANNELS
- - - AGUA FRIA RIVER BANK LINE
- WF 1391.98 SECTION 29 WELL FIELD OBSERVATION WELL NO.1 WATER LEVEL ELEVATION 3/22/85
- P#5 1388.40 PIEZOMETER LOCATION, NUMBER AND WATER LEVEL ELEVATION 3/22/85
- #21 1394.3 BUREAU OF RECLAMATION BORING LOCATION, NUMBER AND WATER LEVEL ELEVATION 3/21/85
- 1390 GROUNDWATER ELEVATION CONTOUR; 3/1985 (DASHED WHERE INFERRED)
- INFERRED DIRECTION OF GROUNDWATER MOVEMENT



SOURCES: SPEYER & ASSOCIATES, P.C., 2005
ADAPTED FROM WATER RESOURCES & ASSOCIATES, (1985b)
USGS 7 1/2 MIN. QUADRANGLE - BALDY MTN., AZ

**SPEYER &
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GROUNDWATER ELEVATION (1985)
AQUIFER PROTECTION PERMIT (APP) APPLICATION
THE ESTATES AT LAKESIDE
LAKE PLEASANT, ARIZONA

PREPARED BY:
S. SPEYER

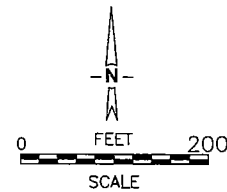
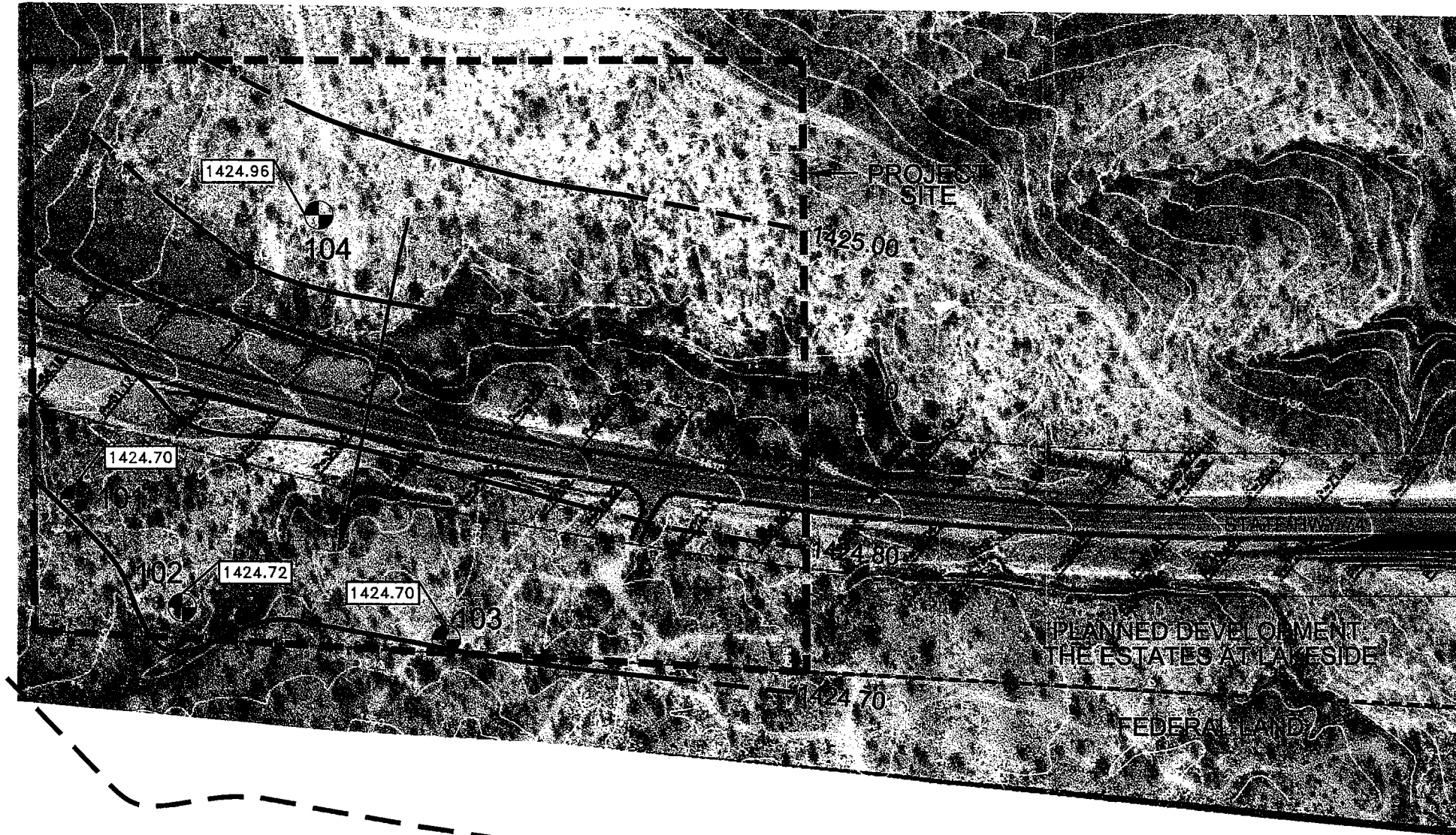
APPROVED BY:
S. SPEYER

PROJECT NO.:
2004.019.01.04





DATE:
3/2005

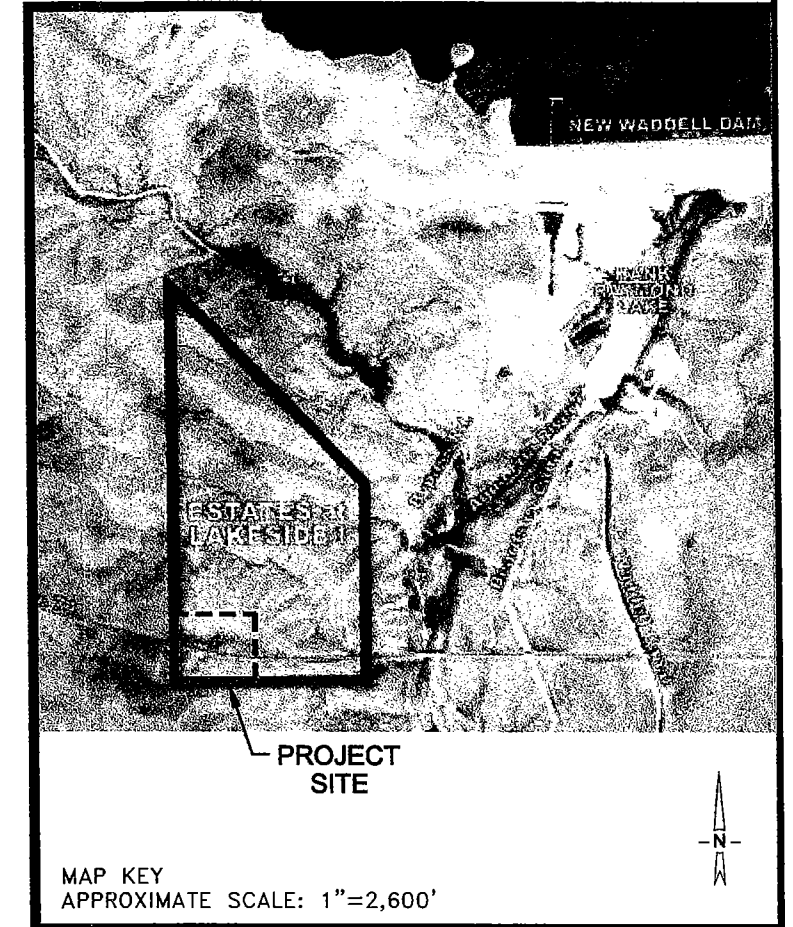
FIGURE NO.:

8



LEGEND

-  **104** LOCATION OF PROJECT BOREHOLES
-  **1424.96** GROUNDWATER ELEVATION (RELATIVE TO MEAN SEA LEVEL)
-  GROUNDWATER ELEVATION CONTOUR (RELATIVE TO MEAN SEA LEVEL) (DASHED WHERE INFERRED)
-  INFERRED DIRECTION OF GROUNDWATER MOVEMENT



SOURCES: SPEYER & ASSOCIATES, P.C., 2005
HADLEY DESIGN GROUP, 2004

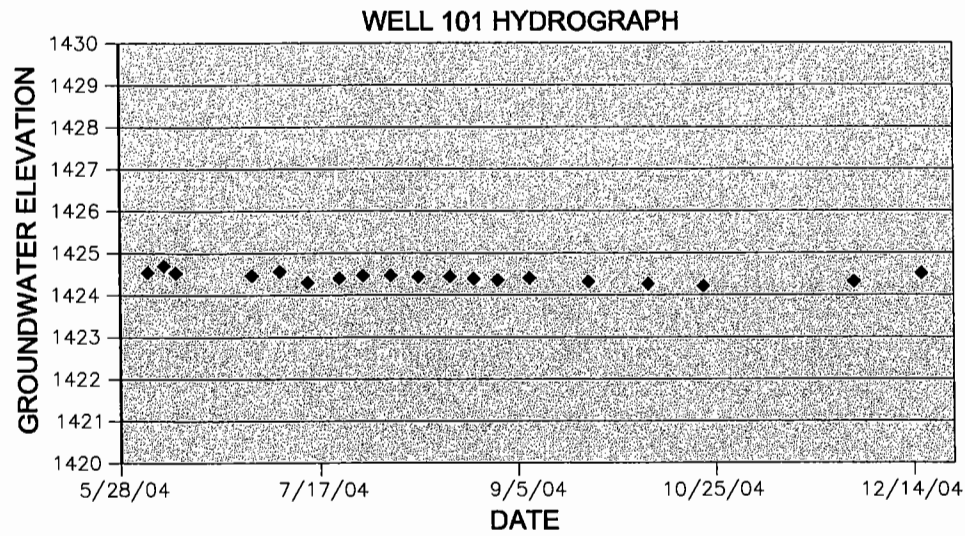
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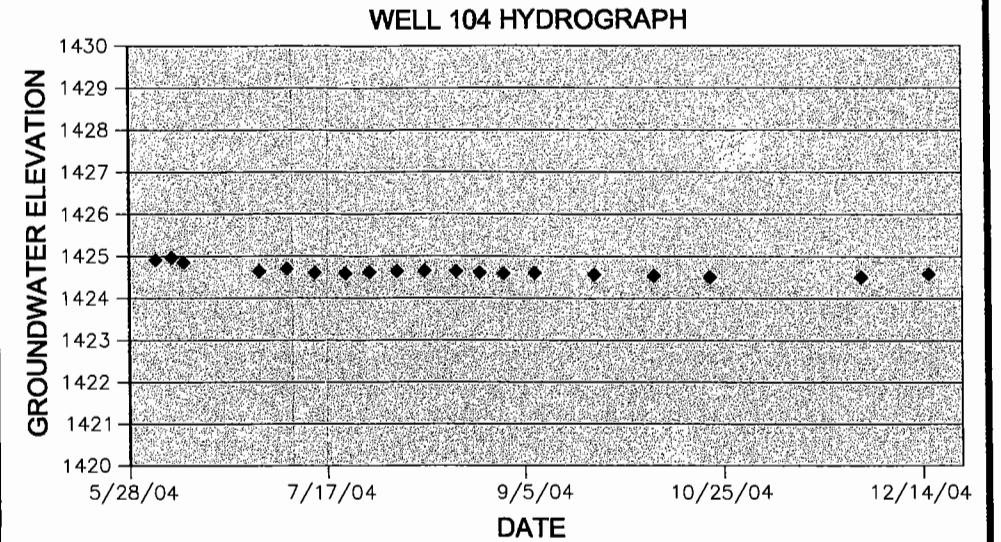
**GROUNDWATER ELEVATION
JUNE 8, 2004**
**AQUIFER PROTECTION PERMIT (APP) APPLICATION
THE ESTATES AT LAKESIDE
LAKE PLEASANT, ARIZONA**

PREPARED BY: S. SPEYER	DATE: 3/2005
APPROVED BY: S. SPEYER	FIGURE NO.:
PROJECT NO.: 2004.019.01.04	9

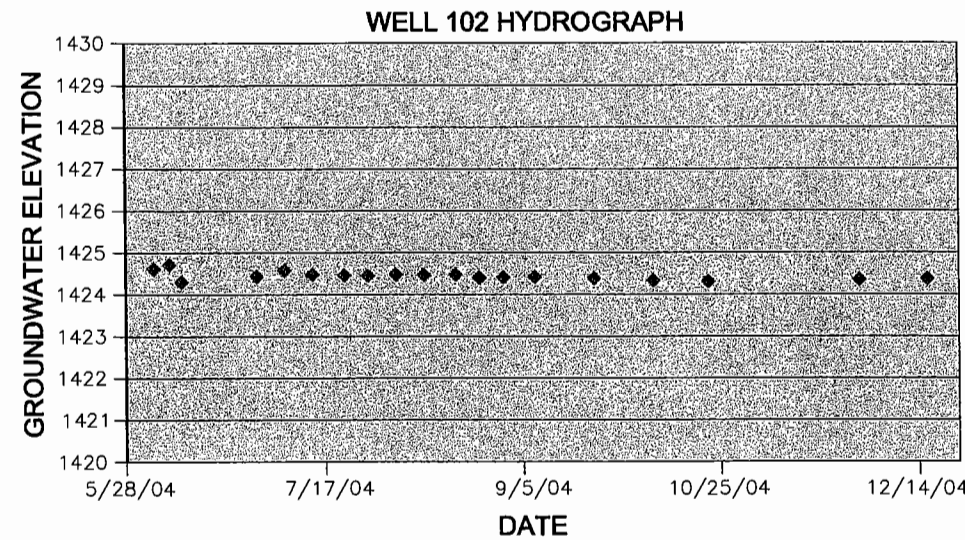
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6/08/2004	14:13	1548.53	123.83	1424.7
6/11/2004	8:55	1548.53	124	1424.53
6/30/2004	13:07	1548.53	124.06	1424.47
7/07/2004	14:25	1548.53	123.97	1424.56
7/14/2004	14:39	1548.53	124.23	1424.3
7/22/2004	13:07	1548.53	124.13	1424.4
7/28/2004	11:10	1548.53	124.07	1424.46
8/04/2004	12:32	1548.53	124.06	1424.47
8/11/2004	15:10	1548.53	124.1	1424.43
8/19/2004	14:41	1548.53	124.09	1424.44
8/25/2004	12:10	1548.53	124.14	1424.39
8/31/2004	17:10	1548.53	124.17	1424.36
9/08/2004	15:37	1548.53	124.12	1424.41
9/23/2004	8:10	1548.53	124.21	1424.32
10/08/2004	13:15	1548.53	124.27	1424.26
10/22/2004	14:51	1548.53	124.32	1424.21
11/29/2004	10:07	1548.53	124.21	1424.32
12/16/2004	12:41	1548.53	124.02	1424.51
		AVG	124.10	1424.42



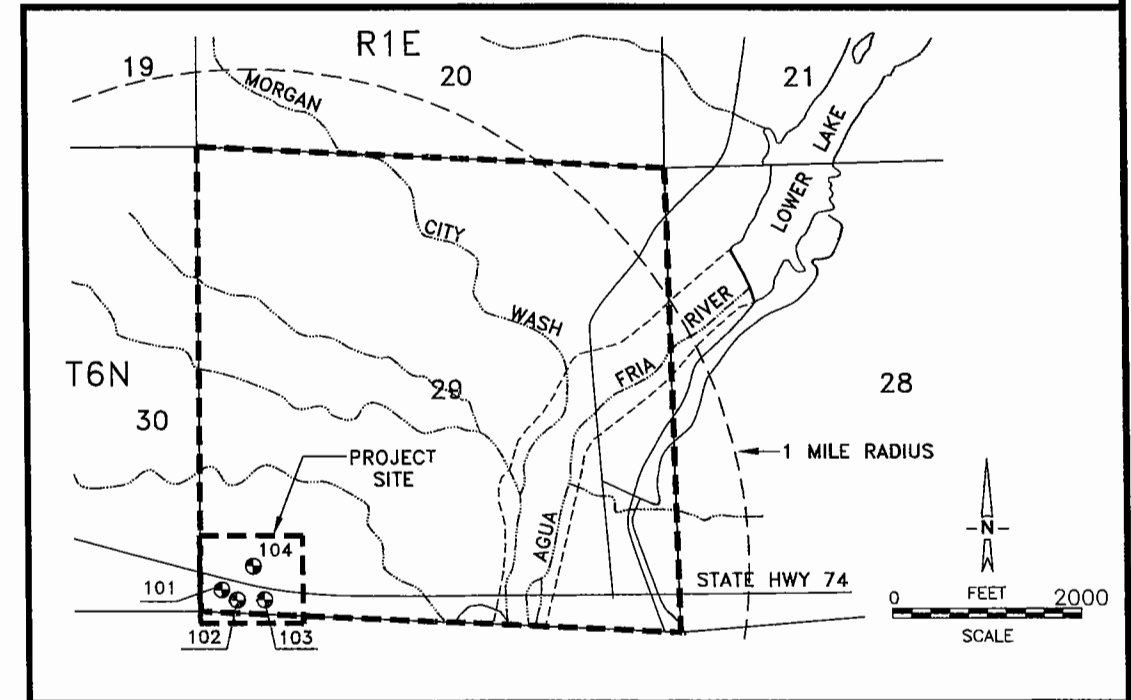
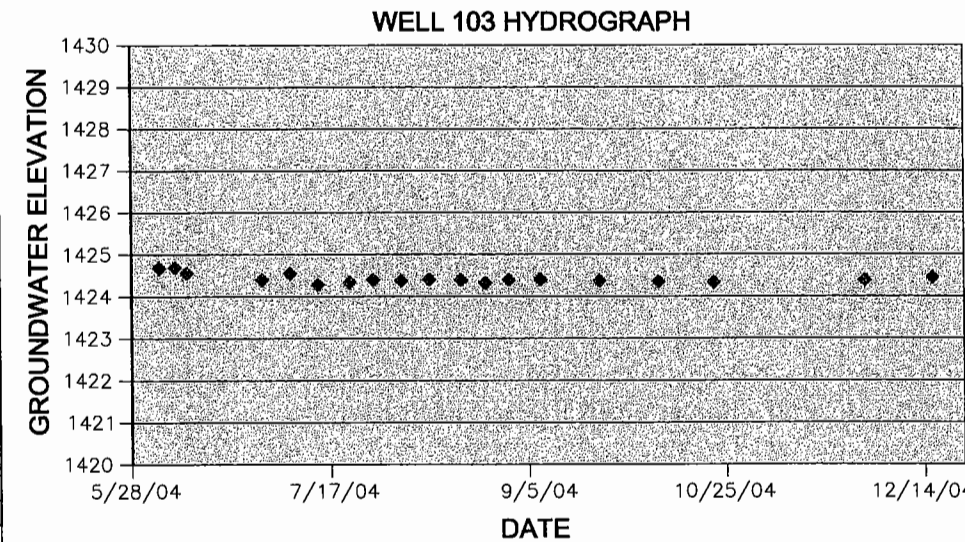
DATE	TIME	WELL ELEVATION	DtGW	GW ELEVATION
6/04/2004	13:45	1532.61	107.7	1424.91
6/08/2004	14:42	1532.61	107.65	1424.96
6/11/2004	9:06	1532.61	107.76	1424.85
6/30/2004	13:31	1532.61	107.98	1424.63
7/07/2004	14:51	1532.61	107.92	1424.69
7/14/2004	14:27	1532.61	108.02	1424.59
7/22/2004	13:40	1532.61	108.03	1424.58
7/28/2004	11:44	1532.61	108	1424.61
8/04/2004	12:17	1532.61	107.98	1424.63
8/11/2004	15:44	1532.61	107.97	1424.64
8/19/2004	14:27	1532.61	107.98	1424.63
8/25/2004	12:41	1532.61	108.01	1424.6
8/31/2004	17:40	1532.61	108.03	1424.58
9/08/2004	16:14	1532.61	108.02	1424.59
9/23/2004	8:40	1532.61	108.05	1424.56
10/08/2004	13:45	1532.61	108.08	1424.53
10/22/2004	14:25	1532.61	108.11	1424.5
11/29/2004	10:30	1532.61	108.11	1424.5
12/16/2004	13:10	1532.61	108.03	1424.58
		AVG	107.97	1424.64



DATE	TIME	WELL ELEVATION	DtGW	GW ELEVATION
6/04/2004	12:10	1534.6	109.98	1424.62
6/08/2004	14:17	1534.6	109.88	1424.72
6/11/2004	9:48	1534.6	110.29	1424.31
6/30/2004	13:12	1534.6	110.17	1424.43
7/07/2004	14:29	1534.6	110.02	1424.58
7/14/2004	14:45	1534.6	110.12	1424.48
7/22/2004	13:12	1534.6	110.14	1424.46
7/28/2004	11:15	1534.6	110.15	1424.45
8/04/2004	12:37	1534.6	110.12	1424.48
8/11/2004	15:16	1534.6	110.14	1424.46
8/19/2004	14:46	1534.6	110.13	1424.47
8/25/2004	12:15	1534.6	110.2	1424.4
8/31/2004	17:15	1534.6	110.19	1424.41
9/08/2004	15:43	1534.6	110.19	1424.41
9/23/2004	8:15	1534.6	110.22	1424.38
10/08/2004	13:21	1534.6	110.26	1424.34
10/22/2004	14:43	1534.6	110.3	1424.3
11/29/2004	10:12	1534.6	110.25	1424.35
12/16/2004	12:46	1534.6	110.22	1424.38
		AVG	110.15	1424.44



DATE	TIME	WELL ELEVATION	DtGW	GW ELEVATION
6/04/2004	16:15	1538.96	114.27	1424.69
6/08/2004	14:23	1538.96	114.26	1424.7
6/11/2004	9:19	1538.96	114.4	1424.56
6/30/2004	13:19	1538.96	114.56	1424.4
7/07/2004	14:36	1538.96	114.41	1424.55
7/14/2004	14:54	1538.96	114.68	1424.28
7/22/2004	13:20	1538.96	114.62	1424.34
7/28/2004	11:23	1538.96	114.57	1424.39
8/04/2004	12:45	1538.96	114.59	1424.37
8/11/2004	15:23	1538.96	114.56	1424.4
8/19/2004	14:55	1538.96	114.57	1424.39
8/25/2004	12:23	1538.96	114.64	1424.32
8/31/2004	17:24	1538.96	114.56	1424.4
9/08/2004	15:52	1538.96	114.55	1424.41
9/23/2004	8:23	1538.96	114.59	1424.37
10/08/2004	13:27	1538.96	114.61	1424.35
10/22/2004	14:38	1538.96	114.63	1424.33
11/29/2004	10:18	1538.96	114.57	1424.39
12/16/2004	12:52	1538.96	114.51	1424.45
		AVG	114.53	1424.42



SOURCES: SPEYER & ASSOCIATES, P.C., 2005
USGS 7 1/2 MIN. QUADRANGLE - BALDY MTN., AZ

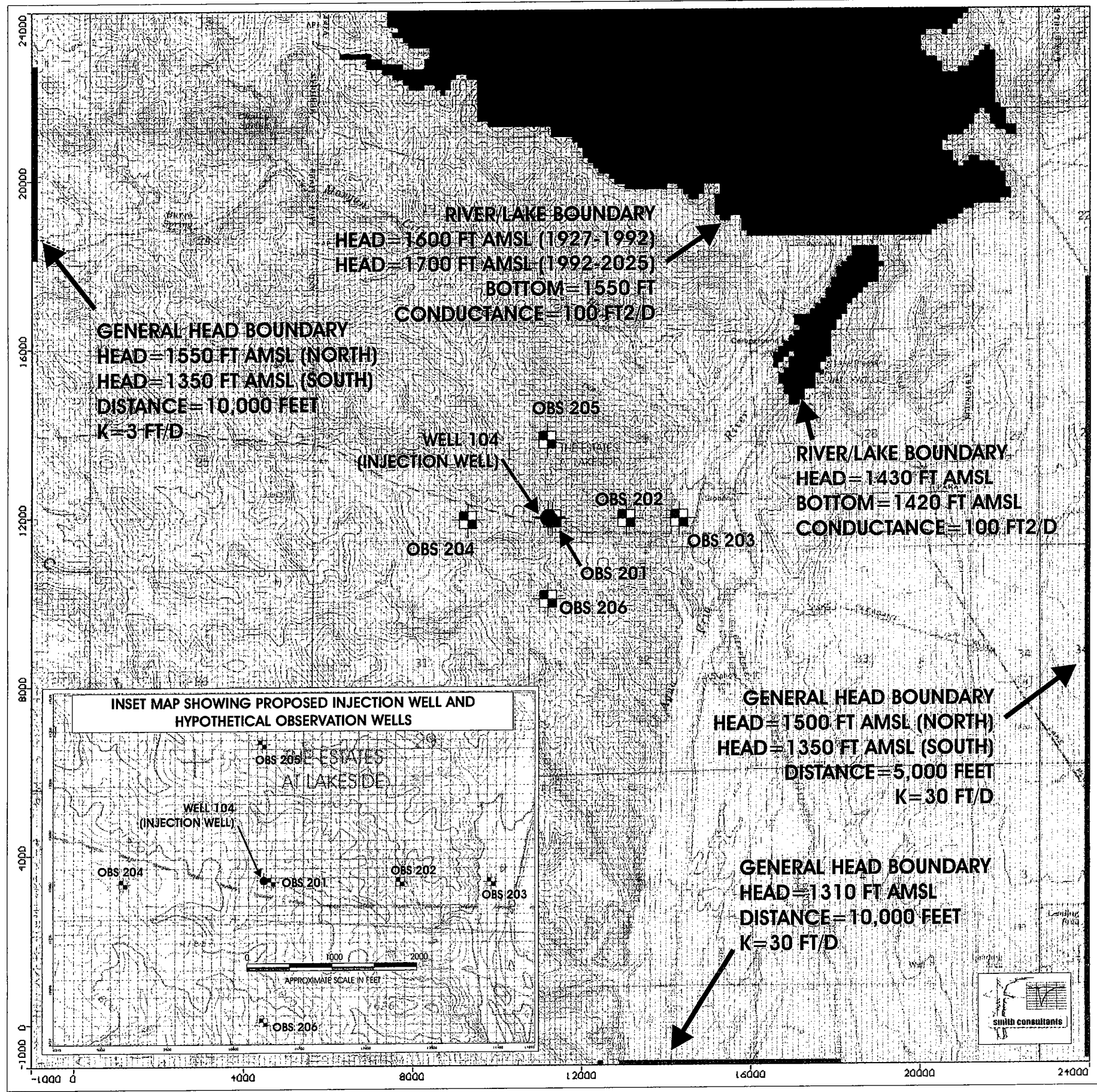
**SPEYER &
ASSOCIATES, P.C.**

3567 East Harvard Court
Gilbert, Arizona 85234
(602) 432-3525; (480) 854-9435 fax

USF WELL HYDROGRAPHS
JUNE 4, 2004 TO DECEMBER 16, 2004
AQUIFER PROTECTION PERMIT (APP) APPLICATION
THE ESTATES AT LAKESIDE
LAKE PLEASANT, ARIZONA

PREPARED BY: S. SPEYER	DATE: 3/2005
APPROVED BY: S. SPEYER	FIGURE NO.:
PROJECT NO.: 2004.019.01.04	10

2004 Speyer & Associates, P.C.
Date Created: 1-14-2005
Drafted By: Smith Consultants
Rev. 0000 Rev. By:



**SPEYER &
ASSOCIATES, P.C.**

3567 East Harvard Court
Gilbert, Arizona 85234
(602) 432-3525 (480) 854-9435 fax

**MODEL GRID AND LAYER 1
BOUNDARY CONDITIONS**

UNDERGROUND STORAGE FACILITY (USF) PERMIT
THE ESTATES AT LAKESIDE
LAKE PLEASANT, ARIZONA

PREPARED BY:
S.A. SMITH

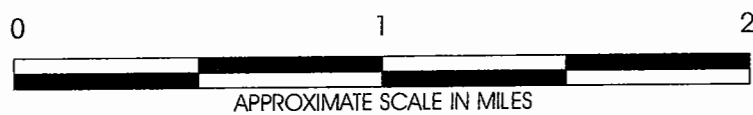
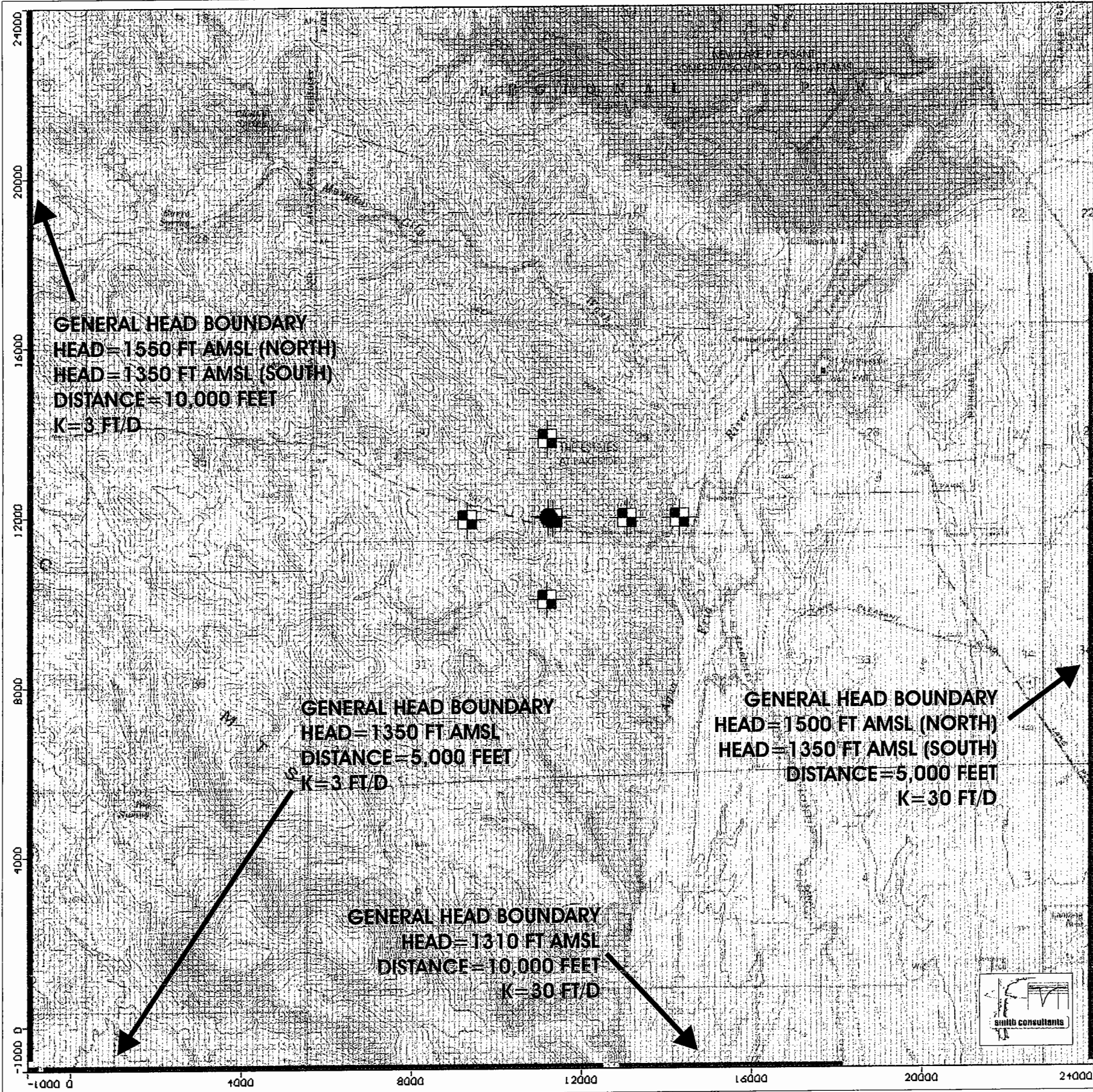
APPROVED BY:
S. SPEYER

PROJECT NO.
2004.019.01.04

DATE:
1/2005

FIGURE NO:

11



**SPEYER &
 ASSOCIATES, P.C.**

3567 East Harvard Court
 Gilbert, Arizona 85234
 (602) 432-3525 (480) 854-9435 fax

**LAYER 2-4 BOUNDARY
 CONDITIONS**

UNDERGROUND STORAGE FACILITY (USF) PERMIT
 THE ESTATES AT LAKESIDE
 LAKE PLEASANT, ARIZONA

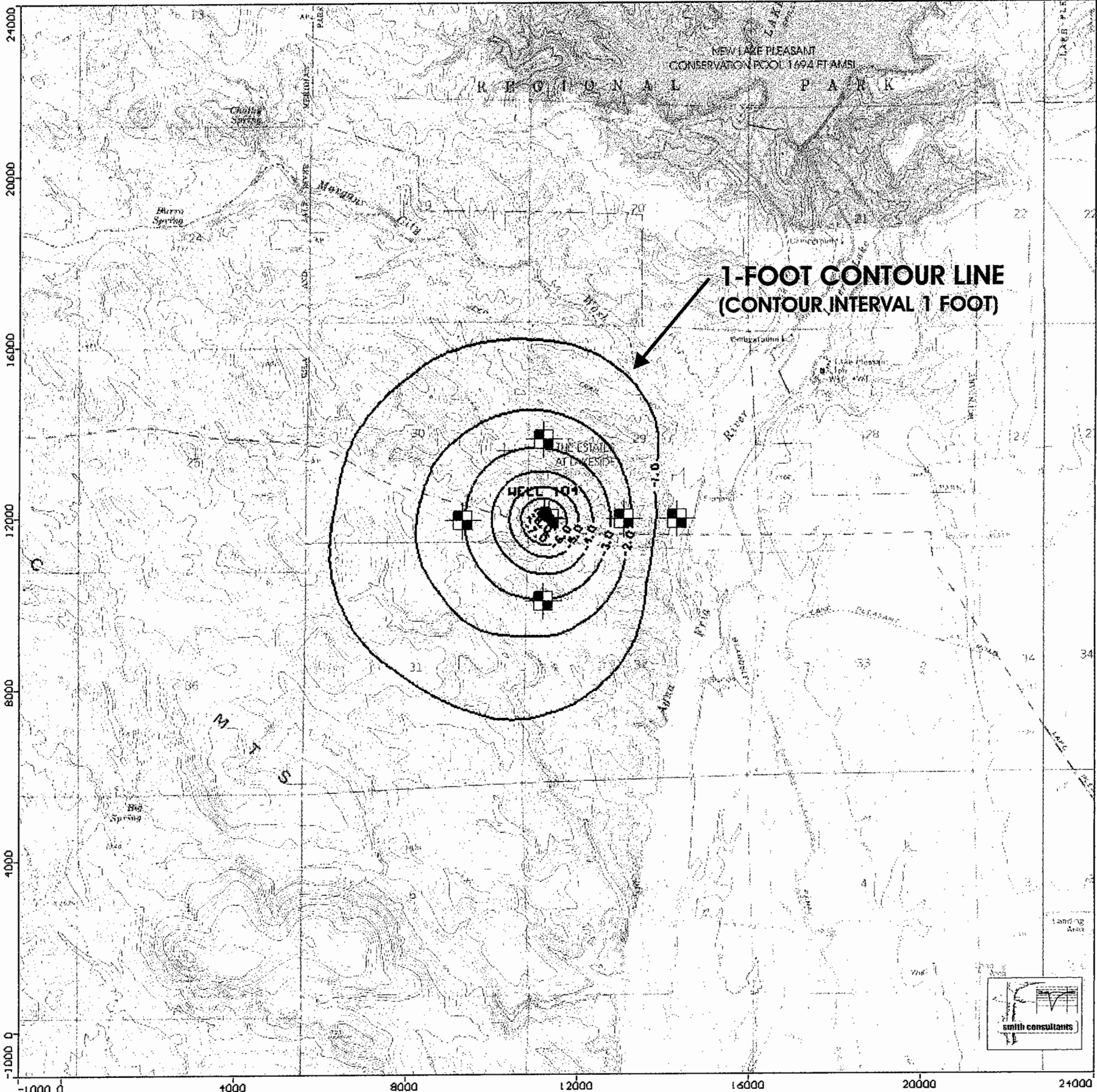
PREPARED BY:
 S.A. SMITH

APPROVED BY:
 S. SPEYER

PROJECT NO.
 2004.019.01.04

DATE:
 1/2005

FIGURE NO:
12



**SPEYER &
ASSOCIATES, P.C.**

3567 East Harvard Court
Gilbert, Arizona 85234
(602) 432-3525 (480) 854-9435 fax

**GROUNDWATER MOUNDING
AND AREA OF IMPACT**

UNDERGROUND STORAGE FACILITY (USF) PERMIT
THE ESTATES AT LAKESIDE
LAKE PLEASANT, ARIZONA

PREPARED BY:
S.A. SMITH

APPROVED BY:
S. SPEYER

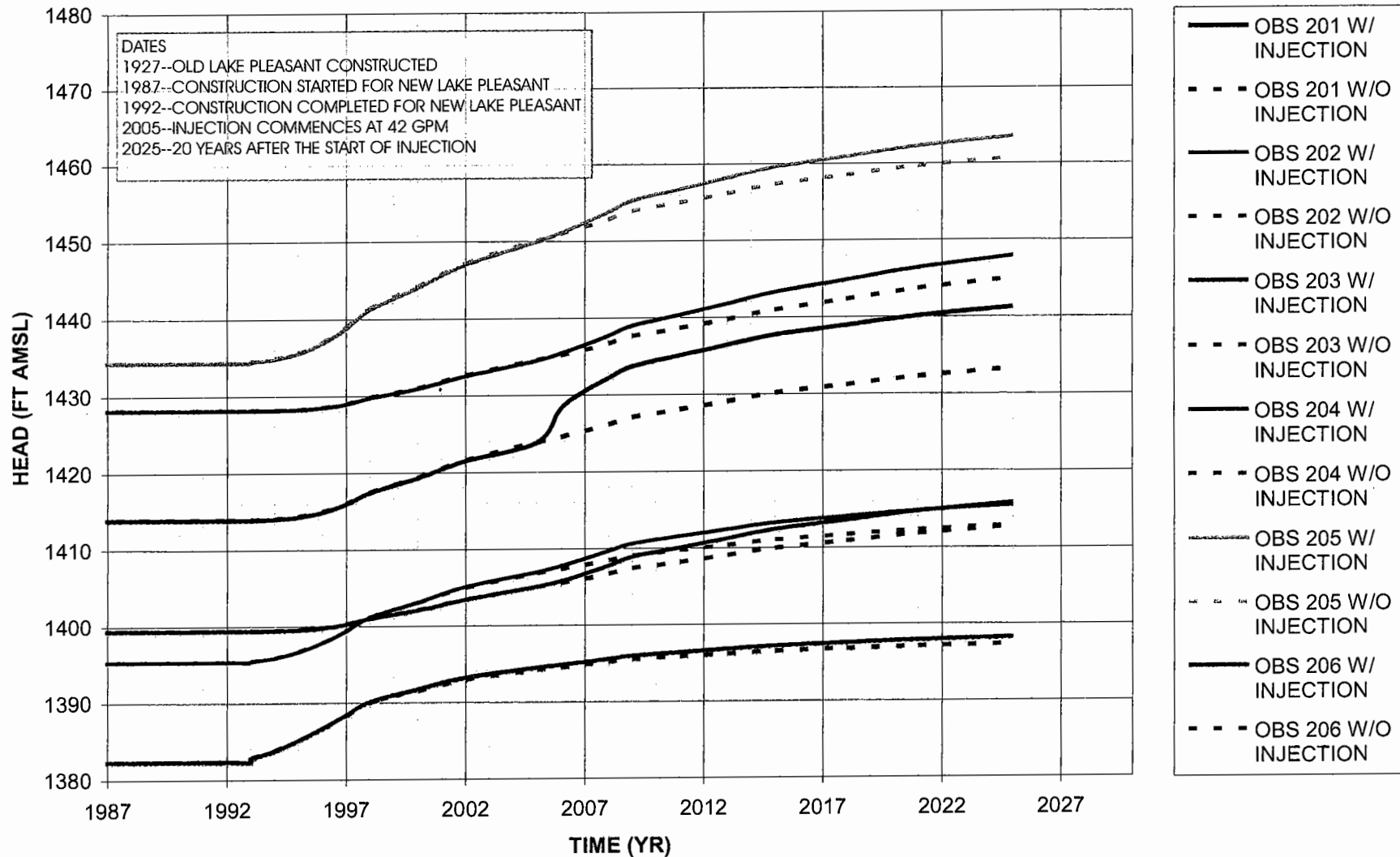
PROJECT NO.
2004.019.01.04

DATE:
1/2005

FIGURE NO:

13

HEAD VS TIME



**SPEYER &
ASSOCIATES, P.C.**

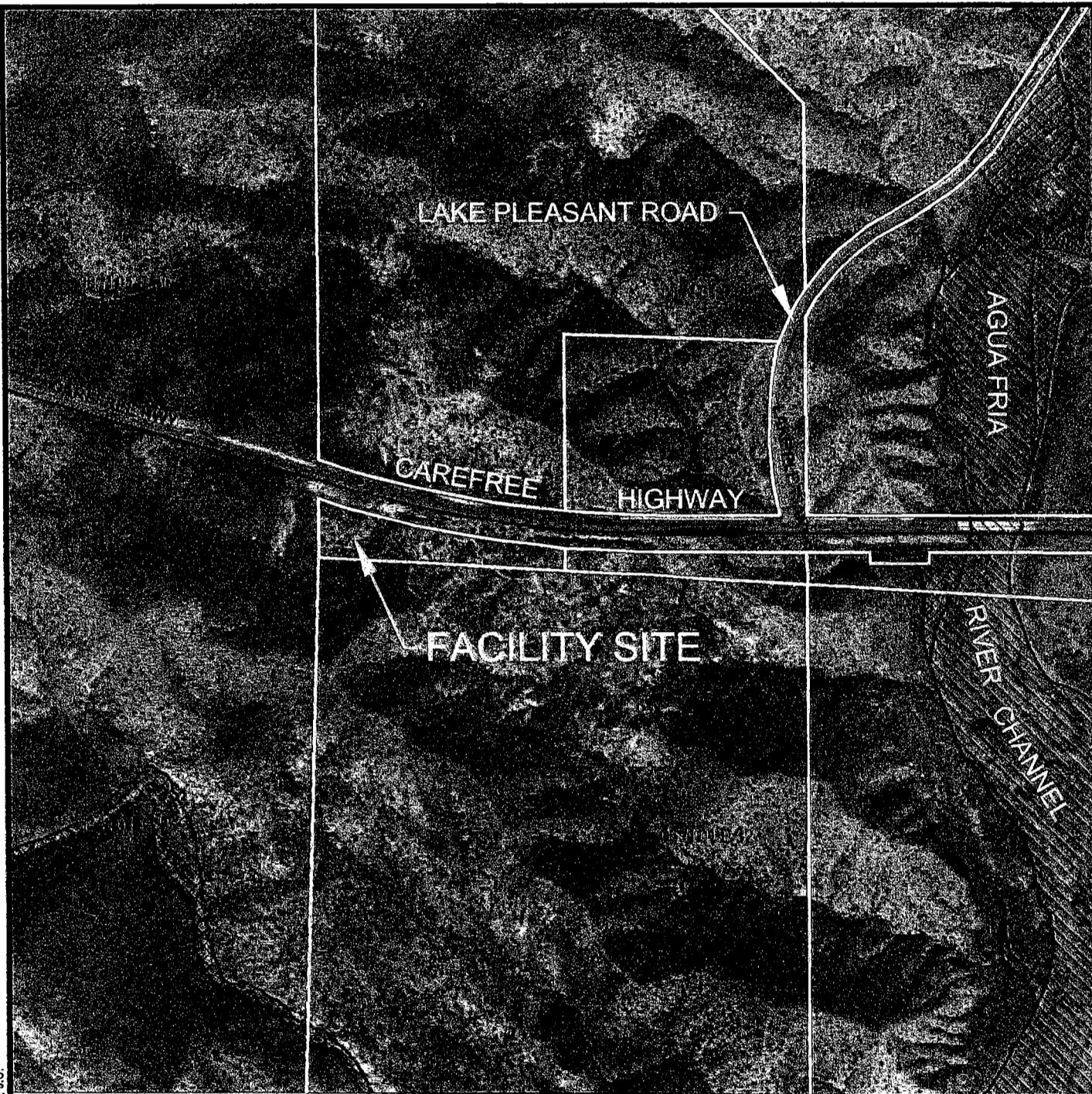
3567 East Harvard Court
 Gilbert, Arizona 85234
 (602) 432-3525 (480) 854-9435 fax

**HEAD VS TIME AT HYPOTHETICAL
OBSERVATION WELLS**

UNDERGROUND STORAGE FACILITY (USF) PERMIT
 THE ESTATES AT LAKESIDE
 LAKE PLEASANT, ARIZONA

PREPARED BY:
S.A. SMITH
 APPROVED BY:
S. SPEYER
 PROJECT NO.
 2004.019.01.04

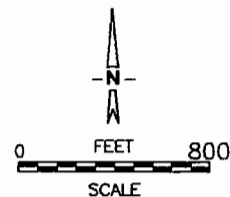
DATE:
 1/2005
 FIGURE NO:
14



LEGEND



PROPERTY BOUNDARIES
EXTENT OF 100-YEAR FLOOD PLAN
AGUA FRIA RIVER CHANNEL



SOURCES: SPEYER & ASSOCIATES, P.C., 2005
MARICOPA COUNTY ASSESSOR GIS MAPS, 2004

**SPEYER &
ASSOCIATES, P.C.**

3587 East Harvard Court
Gilbert, Arizona 85234
(602) 432-3525: (480) 854-9435 fax

**FLOOD CONTROL DISTRICT
100-YEAR FLOOD PLAN**
AQUIFER PROTECTION PERMIT (APP) APPLICATION
THE ESTATES AT LAKESIDE
LAKE PLEASANT, ARIZONA

PREPARED BY:
S. SPEYER
APPROVED BY:
S. SPEYER
PROJECT NO.:
2004.019.01.04

DATE:
3/2005
FIGURE NO.:
15

APPENDIX E

ESTIMATED COSTS

ANTICIPATED CAPITAL AND O&M COSTS

Construction Cost Estimate:

<u>Item</u>	<u>Description</u>	<u>Estimated Cost (\$)</u>
1	Lift stations (6)	150,000.00
2	Site Work	70,000.00
3	Electrical	30,000.00
4	Manufactured Treatment Plant by Mar-Wood	200,000.00
5	Effluent Disposal	100,000.00
6	Miscellaneous Construction	<u>50,000.00</u>
Total		\$600,000.00

Operation & Maintenance Costs Estimate:

<u>Item</u>	<u>Description</u>	<u>Estimated Cost (\$)</u>
1	Salary (Certified Operator)	30,000.00
2	Power	35,000.00
3	Sludge Pumping	2,000.00
4	Testing	8,000.00
5	Equipment Repair & Replacement	3,000.00
6	Chemicals	<u>2,000.00</u>
Total		\$80,000.00 / yr.

APPENDIX F

FINANCIAL SECURITY

Lake Pleasant Sewer Company

2390 East Camelback Road
Suite 310
Phoenix, Arizona 85016-3451

Phone: (602) 957-8181
Fax: (602) 957-8320

March 22, 2005

Arizona Department of Environmental Quality
1110 W. Washington
Phoenix, Arizona 85007

Hand Delivered

Gentlemen:

In connection with the accompanying aquifer protection permit application I am submitting this letter and attachments as a demonstration of financial capability (A.A.C. R18-9-A203). Lake Pleasant Sewer Company is wholly owned by DLGC II, L.L.C. Enclosed is the most recent Corporation Commission annual report (December 31, 2003). Please refer to the attached letter from DLGC II, L.L.C. indicating its ownership and related financial statements.

Enclosed is our permit application fee of \$1,000.

Should you need further information please contact Charles Civer, the Company's agent, at (480) 451-6961.

Sincerely,



Donald R. Leo, President
Chief Financial Officer

Enclosures



**STATE OF ARIZONA
CORPORATION COMMISSION
CORPORATION ANNUAL REPORT
& CERTIFICATE OF DISCLOSURE**

AZ Corp. Commission



00886982

DUE ON OR BEFORE 04/30/2004

FY03-04

FILING FEE \$45.00

The following information is required by A.R.S. §§10-1622 & 10-1122 for all corporations organized pursuant to Arizona Revised Statutes, Title 10. The Commission's authority to prescribe this form is A.R.S. §§10-121.A. & 10-3121.A. YOUR REPORT MUST BE SUBMITTED ON THIS ORIGINAL FORM. Make changes or corrections where necessary. Information for the report should reflect the current status of the corporation. See instructions on page 4 for proper format.

1. -0192760-4

LAKE PLEASANT SEWER COMPANY
% DONALD R LEO
2390 E CAMELBACK RD #310
PHOENIX, AZ 85016

RECEIVED

MAR - 5 - 2004

ARIZONA CORP. COMMISSION
CORPORATIONS DIVISION

Business Phone: _____ (Business phone is optional.)

State of Domicile: ARIZONA Type of Corporation: PROFIT

2. Statutory Agent: DONALD R LEO

Physical Address, if Different:

Mailing Address: 2390 E CAMELBACK RD #310

Physical Address:

City, State, Zip: PHOENIX, AZ 85016

City, State, Zip:

Use this box only if appointing a new Statutory Agent.

ACC USE ONLY

Fee \$ 45

Penalty \$ _____

Relaxation \$ _____

Expedite \$ _____

Resubmit \$ _____

If appointing a new statutory agent, the new agent MUST consent to that appointment by signing below.

I (individual or We, corporation or limited liability company) having been designated the new Statutory Agent do hereby consent to this appointment until my removal or resignation pursuant to law.

Signature of new Statutory Agent

Printed Name of new Statutory Agent

3. Secondary Address:

(Foreign Corporations are
REQUIRED to complete
this section).

4. Check the one category below which best describes the CHARACTER OF BUSINESS of your corporation.

BUSINESS CORPORATIONS

- | | |
|------------------------|-------------------------------------|
| 1. Accounting | 20. Manufacturing |
| 2. Advertising | 21. Mining |
| 3. Aerospace | 22. Motion Picture |
| 4. Agriculture | 23. Pharmaceutical |
| 5. Architecture | 24. Publishing/Printing |
| 6. Banking/Finance | 25. Restaurant/Bar |
| 7. Barber/Coiffure | 26. Retail Store |
| 8. Construction | 27. Retailer/Wholesaler |
| 9. Contractor | 28. Retail Sales |
| 10. Credit/Collection | 29. Science/Research |
| 11. Education | 30. Sports/Sporting Events |
| 12. Engineering | 31. Technology/Computer |
| 13. Entertainment | 32. Technology/General |
| 14. General Consulting | 33. Transportation |
| 15. Health Care | 34. Tourism/Convention Services |
| 16. Hotel/Motel | 35. Transportation |
| 17. Import/Export | 36. Utilities |
| 18. Insurance | 37. Veterinary Medicine/Animal Care |
| 19. Legal Services | 38. Other _____ |

NON-PROFIT CORPORATIONS

- | |
|---|
| 1. Charitable |
| 2. Benevolent |
| 3. Educational |
| 4. Civic |
| 5. Political |
| 6. Religious |
| 7. Social |
| 8. Literary |
| 9. Cultural |
| 10. Athletic |
| 11. Science/Research |
| 12. Hospital/Health Care |
| 13. Agricultural |
| 14. Animal Husbandry |
| 15. Homeowner's Association |
| 16. Professional, commercial, industrial or trade association |
| 17. Other _____ |

-0192760-4 LAKE PLEASANT SEWER COMPANY

Page 2

5. CAPITALIZATION: (Business Corporations and Business Trusts are **REQUIRED** to complete this section.)

Business trusts must indicate the number of transferable certificates held by trustees evidencing their beneficial interest in the trust estate. Please examine the corporation's original Articles of Incorporation for the amount of shares authorized. Review all corporation amendments to determine if the original number of shares has changed. Examine the corporation's minutes for the number of shares issued. **Please Print or Type Clearly.**

Number of Shares/Certificates Authorized	Class	Series Within Class (if any)
1,000,000	Common	

Number of Shares/Certificates Issued	Class	Series Within Class (if any)
1,000	Common	

6. SHAREHOLDERS: (Business Corporations and Business Trusts are **REQUIRED** to complete this section.)

List shareholders holding more than 20% of any class of shares issued by the corporation, or having more than a 20% beneficial interest in the corporation. **Please Type or Print Clearly.**

Name: DEGC II, LLC Name: _____

NONE ☐

Name: _____ Name: _____

7. OFFICERS Please Type or Print Clearly. You Must List at Least One.

Name: Donald R. Leo Name: _____

Title: President Title: _____

Address: 2390 E. Camelback Road, Suite 310 Address: _____

Phoenix, AZ 85016

Date taking office: 11/03/99 Date taking office: _____

Name: _____ Name: _____

Title: _____ Title: _____

Address: _____ Address: _____

Date taking office: _____ Date taking office: _____

8. DIRECTORS Please Type or Print Clearly. You Must List at Least One.

Name: Donald R. Leo Name: _____

Address: 2390 E. Camelback Road, Suite 310 Address: _____

Phoenix, AZ 85016

Date taking office: 11/03/99 Date taking office: _____

Name: _____ Name: _____

Address: _____ Address: _____

Date taking office: _____ Date taking office: _____

Please Enter Corporation Name: Take Pleasant Sewer Company File number 192760-4 Page 3**8. FINANCIAL DISCLOSURE (A.R.S. §10-11622.A.9)**Has ANY person serving either by election or appointment as an officer, director, trustee, incorporator and/or person controlling or holding more than 10% of the issued and outstanding common shares or 10% of any other proprietary, beneficial or membership interest in the corporation been: Underlined portion pertains to business corporations only**9A. MEMBERS (A.R.S. § 10-11622.A.6)**

Only Nonprofit Corporations must answer this question.

This corporation **DOES** ☐ **DOES NOT** ☐ have members.**10. CERTIFICATE OF DISCLOSURE (A.R.S. §§10-1622.A.8 & 10-11622.A.7)**Has ANY person serving either by election or appointment as an officer, director, trustee, incorporator and/or person controlling or holding more than 10% of the issued and outstanding common shares or 10% of any other proprietary, beneficial or membership interest in the corporation been: Underlined portion pertains to business corporations only

1. Convicted of a felony involving a transaction in securities, consumer fraud or antitrust in any state or federal jurisdiction within the seven year period immediately preceding the execution of this certificate?
2. Convicted of a felony, the essential elements of which consisted of fraud, misrepresentation, theft by false pretenses or restraint of trade or monopoly in any state or federal jurisdiction within the seven year period immediately preceding execution of this certificate?
3. Or is subject to an injunction, judgment, decree or permanent order of any state or federal court entered within the seven year period immediately preceding execution of this certificate where such injunction, judgment, decree or permanent order involved the violation of:
 - (a) fraud or registration provisions of the securities laws of that jurisdiction, or
 - (b) the consumer fraud laws of that jurisdiction, or
 - (c) the antitrust or restraint of trade laws of that jurisdiction?

One box must be marked: **YES** ☐ **NO** ☒If "YES", the following information must be submitted as an attachment to this report for each person subject to one or more of the actions stated in items 1. through 3. above.

- | | |
|---|---|
| 1. Full name and prior names used. | 5. Date and location of birth. |
| 2. Full birth name. | 6. Social Security Number. |
| 3. Present home address. | 7. The nature and description of each conviction or judicial action, the date and location, the court and public agency involved, and the file or cause number of the case. |
| 4. Prior addresses (for immediate preceding 7 year period). | |

11. STATEMENT OF BANKRUPTCY, RECEIVERSHIP or CHARTER REVOCATION (A.R.S. §§10-202.D.2, 10-3202.D.2, 10-1623 & 10-11623)

A) Has the corporation filed a petition for bankruptcy or appointed a receiver?

One box must be marked: **YES** ☐ **NO** ☒B) Has any person serving as an officer, director, trustee or incorporator of the corporation served in any such capacity OR held or controlled over 20% of the issued and outstanding common shares, or 20% of any other proprietary, beneficial or membership interest in any corporation which has been placed in bankruptcy, receivership or had its charter revoked, or administratively or judicially dissolved by any state or jurisdiction?(Underlined portion pertains to business corporations only)One box must be marked: **YES** ☐ **NO** ☒If "YES" to A and/or B, the following information must be submitted as an attachment to this report for each person subject to the statement above.

1. The names and addresses of each corporation and the person or persons involved (e.g. officer, director, trustee or major stockholder)
2. The state in which each corporation was a) incorporated b) transacted business.
3. The dates of corporate operation.
4. If any involved person (listed in #1) has been involved in any other bankruptcy proceeding within the past year, the name and address of each corporation.
5. Date, Case number and Court where the bankruptcy was filed or receiver appointed.
6. Name and address of court appointed receiver.

12. SIGNATURES: Annual Reports must be signed and dated by at least one duly authorized officer or they will be rejected.

I declare, under penalty of law that all corporate income tax returns required by Title 43 of the Arizona Revised Statutes have been filed with the Arizona Department of Revenue. I further declare under penalty of law that I (we) have examined this report and the certificate, including any attachments, and to the best of my (our) knowledge and belief they are true, correct and complete.

Name: Donald R. Leo Date: 2/26/04 Name: _____ Date: _____Signature:  Signature: _____Title: President Title: _____

(Signator(s) must be duly authorized corporate officer(s) listed in section 7 of this report.)

ARIZONA CORPORATION COMMISSION
UTILITIES DIVISION

ANNUAL REPORT MAILING LABEL – MAKE CHANGES AS NECESSARY

SW-02496a
Lake Pleasant Sewer Company
2390 E. Camelback Rd. #310
Phoenix AZ 85016

ANNUAL REPORT

FOR YEAR ENDING

12	31	2003
----	----	------

FOR COMMISSION USE

ANN05	03
-------	----

PROCESSED BY:

SCANNED

COMPANY INFORMATION

Company Name (Business Name) LAKE PLEASANT SEWER COMPANY

Mailing Address 2390 E. CAMELBACK RD. SUITE 310

(Street)

PHOENIX

(City)

AZ

(State)

85016

(Zip)

(602) 957-8181

Telephone No. (Include Area Code)

(602) 957-8320

Fax No. (Include Area Code)

Pager/Cell No. (Include Area Code)

Email Address _____

Local Office Mailing Address _____

(Street)

(City)

(State)

(Zip)

Local Office Telephone No. (Include Area Code)

Fax No. (Include Area Code)

Pager/Cell No. (Include Area Code)

Email Address _____

MANAGEMENT INFORMATION

Management Contact: DONALD R. LEO

(Name)

PRESIDENT

(Title)

2390 E. CAMELBACK RD. SUITE 310

(Street)

PHOENIX

(City)

AZ

(State)

85016

(Zip)

(602) 957-8181

Telephone No. (Include Area Code)

(602) 957-8320

Fax No. (Include Area Code)

Pager/Cell No. (Include Area Code)

Email Address _____

On Site Manager: _____

(Name)

(Street)

(City)

(State)

(Zip)

Telephone No. (Include Area Code)

Fax No. (Include Area Code)

Pager/Cell No. (Include Area Code)

Email Address _____

☐ Please mark this box if the above address(es) have changed or are updated since the last filing.

Statutory Agent: DONALD R. LEO

(Name)

2390 E. CAMELBACK RD. SUITE 310

PHOENIX

AZ

85016

(Street)

(City)

(State)

(Zip)

(602) 957-8181

(602) 957-8320

Telephone No. (Include Area Code)

Fax No. (Include Area Code)

Pager/Cell No. (Include Area Code)

Attorney: _____

(Name)

(Street)

(City)

(State)

(Zip)

Telephone No. (Include Area Code)

Fax No. (Include Area Code)

Pager/Cell No. (Include Area Code)

☐ Please mark this box if the above address(es) have changed or are updated since the last filing.

OWNERSHIP INFORMATION

Check the following box that applies to your company:

☐ Sole Proprietor (S)

☒ C Corporation (C) (Other than Association/Co-op)

☐ Partnership (P)

☐ Subchapter S Corporation (Z)

☐ Bankruptcy (B)

☐ Association/Co op (A)

☐ Receivership (R)

☐ Limited Liability Company

☐ Other (Describe) _____

COUNTIES SERVED

Check the box below for the county/ies in which you are certificated to provide service:

☐ APACHE

☐ COCHISE

☐ COCONINO

☐ GILA

☐ GRAHAM

☐ GREENLEE

☐ LA PAZ

☒ MARICOPA

☐ MOHAVE

☐ NAVAJO

☐ PIMA

☐ PINAL

☐ SANTA CRUZ

☐ YAVAPAI

☐ YUMA

☐ STATEWIDE

COMPANY NAME

LAKE PLEASANT SEWER COMPANY

UTILITY PLANT IN SERVICE

Acct. No.	DESCRIPTION	Original Cost (OC)	Accumulated Depreciation (AD)	O.C.L.D. (OC less AD)
351	Organization			
352	Franchises			
353	Land and Land Rights			
354	Structures and Improvements			
355	Power Generation Equipment			
360	Collection Sewers – Force			
361	Collection Sewers – Gravity			
362	Special Collecting Structures			
363	Services to Customers			
364	Flow Measuring Devices			
365	Flow Measuring Installations			
370	Receiving Wells			
380	Treatment and Disposal Equip.			
381	Plant Sewers			
382	Outfall Sewer Lines			
389	Other Plant and Misc. Equipment			
390	Office Furniture and Equipment			
391	Transportation Equipment			
393	Tools, Shop and Garage Equip.			
394	Laboratory Equipment			
395	Power Operated Equipment			
398	Other Plant and Misc. Equip. INTANGIBLE ASSETS	111,463	0	111,463
	TOTALS	111,463	0	111,463

This amount goes on the Balance Sheet Acct. No. 108

COMPANY NAME LAKE PLEASANT SEWER COMPANY

CALCULATION OF DEPRECIATION EXPENSE

Acct. No.	DESCRIPTION	Original Cost (1)	Depreciation Percentage (2)	Depreciation Expense (1x2)
351	Organization			
352	Franchises			
353	Land and Land Rights			
354	Structures and Improvements			
355	Power Generation Equipment			
360	Collection Sewers – Force			
361	Collection Sewers – Gravity			
362	Special Collecting Structures			
363	Services to Customers			
364	Flow Measuring Devices			
365	Flow Measuring Installations			
370	Receiving Wells			
380	Treatment and Disposal Equip.			
381	Plant Sewers			
382	Outfall Sewer Lines			
389	Other Plant and Misc. Equipment			
390	Office Furniture and Equipment			
391	Transportation Equipment			
393	Tools, Shop and Garage Equip.			
394	Laboratory Equipment			
395	Power Operated Equipment			
398	Other Tangible Plant INTANGIBLE ASSETS	111,463	0	0
	TOTALS	111,463	0	0

This amount goes on Comparative Statement of Income and Expense Acct. 403

COMPANY NAME LAKE PLEASANT SEWER COMPANY

BALANCE SHEET

Acct. No.		BALANCE AT BEGINNING OF TEST YEAR	BALANCE AT END OF YEAR
	ASSETS		
	CURRENT AND ACCRUED ASSETS		
131	Cash	\$	\$
132	Special Deposits		
135	Temporary Cash Investments		
141	Customer Accounts Receivable		
146	Notes/Receivables from Associated Companies		
151	Plant Material and Supplies		
162	Prepayments		
174	Miscellaneous Current and Accrued Assets	111,463	111,463
	TOTAL CURRENT AND ACCRUED ASSETS	\$ 111,463	\$ 111,463
	FIXED ASSETS		
101	Utility Plant in Service	\$	\$
103	Property Held for Future Use		
105	Construction Work in Progress		
108	Accumulated Depreciation -- Utility Plant		
121	Non-Utility Property		
122	Accumulated Depreciation -- Non Utility		
	TOTAL FIXED ASSETS	\$ 0	\$ 0
	TOTAL ASSETS	\$ 111,463	\$ 111,463

NOTE: Total Assets on this page should equal **Total Liabilities and Capital** on the following page.

COMPANY NAME LAKE PLEASANT SEWER COMPANY

BALANCE SHEET (CONTINUED)

Acct. No.	LIABILITIES	BALANCE AT BEGINNING OF TEST YEAR	BALANCE AT END OF YEAR
	CURRENT LIABILITES		
231	Accounts Payable	\$	\$
232	Notes Payable (Current Portion)	11,463	11,463
234	Notes/Accounts Payable to Associated Companies		
235	Customer Deposits		
236	Accrued Taxes		
237	Accrued Interest		
241	Miscellaneous Current and Accrued Liabilities		
	TOTAL CURRENT LIABILITIES	\$ 11,463	\$ 11,463
	LONG-TERM DEBT (Over 12 Months)		
224	Long-Term Notes and Bonds	\$	\$
	DEFERRED CREDITS		
252	Advances in Aid of Construction	\$	\$
253	Other Deferred Credits		
255	Accumulated Deferred Investment Tax Credits		
271	Contributions in Aid of Construction		
272	Less: Amortization of Contributions		
281	Accumulated Deferred Income Tax		
	TOTAL DEFERRED CREDITS	\$	\$
	TOTAL LIABILITIES	\$ 11,463	\$ 11,463
	CAPITAL ACCOUNTS		
201	Common Stock Issued	\$ 100,000	\$ 100,000
211	Other Paid in Capital		
215	Retained Earnings		
218	Proprietary Capital (Sole Props and Partnerships)		
	TOTAL CAPITAL	\$ 100,000	\$ 100,000
	TOTAL LIABILITIES AND CAPITAL	\$ 111,463	\$ 111,463

COMPANY NAME LAKE PLEASANT SEWER COMPANY

COMPARATIVE STATEMENT OF INCOME AND EXPENSE

	OPERATING REVENUES	PRIOR YEAR	TEST YEAR
521	Flat Rate Revenues	\$	\$
522	Measured Revenues		
536	Other Wastewater Revenues		
	TOTAL REVENUES	\$ 0	\$ 0
	OPERATING EXPENSES		
701	Salaries and Wages	\$	\$
710	Purchased Wastewater Treatment		
711	Sludge Removal Expense		
715	Purchased Power		
716	Fuel for Power Production		
718	Chemicals		
720	Materials and Supplies		
731	Contractual Services – Professional		
735	Contractual Services – Testing		
736	Contractual Services – Other		
740	Rents		
750	Transportation Expense		
755	Insurance Expense		
765	Regulatory Commission Expense		
775	Miscellaneous Expense		
403	Depreciation Expense		
408	Taxes Other Than Income		
408.11	Property Taxes		
409	Income Taxes		
	TOTAL OPERATING EXPENSES	\$ 0	\$ 0
	OTHER INCOME/EXPENSE		
419	Interest and Dividend Income	\$	\$
421	Non-Utility Income		
426	Miscellaneous Non-Utility Expenses		
427	Interest Expense		
	TOTAL OTHER INCOME/EXP	\$ 0	\$ 0
	NET INCOME/(LOSS)	\$ 0	\$ 0

COMPANY NAME LAKE PLEASANT SEWER COMPANY

SUPPLEMENTAL FINANCIAL DATA

Long-Term Debt

	LOAN #1	LOAN #2	LOAN #3	LOAN #4
Date Issued				
Source of Loan				
ACC Decision No.				
Reason for Loan				
Dollar Amount Issued	\$ 0	\$	\$	\$
Amount Outstanding	\$ 0	\$	\$	\$
Date of Maturity				
Interest Rate	%	%	%	%
Current Year Interest	\$ 0	\$	\$	\$
Current Year Principle	\$ 0	\$	\$	\$

COMPANY NAME LAKE PLEASANT SEWER COMPANY

WASTEWATER COMPANY PLANT DESCRIPTION

TREATMENT FACILITY N/A

TYPE OF TREATMENT (Extended Aeration, Step Aeration, Oxidation Ditch, Aerobic Lagoon, Anaerobic Lagoon, Trickling Filter, Septic Tank, Wetland, Etc.)	
DESIGN CAPACITY OF PLANT (Gallons Per Day)	

LIFT STATION FACILITIES N/A

Location	Quantity of Pumps	Horsepower Per Pump	Capacity Per Pump (GPM)	Wet Well Capacity (gals)

FORCE MAINS N/A

Size	Material	Length (Feet)
4-inch		
6-inch		

MANHOLES N/A

Type	Quantity
Standard	
Drop	

CLEANOUTS N/A

Quantity

COMPANY NAME LAKE PLEASANT SEWER COMPANY

WASTEWATER COMPANY PLANT DESCRIPTION CONTINUED

N/A

COLLECTION MAINS

SERVICES

Size (in inches)	Material	Length (in feet)
4		
6		
8		
10		
12		
15		
18		
21		
24		
30		

Size (in inches)	Material	Quantity
4		
6		
8		
12		
15		

FOR THE FOLLOWING FIVE ITEMS. LIST THE UTILITY OWNED ASSETS IN EACH CATEGORY

SOLIDS PROCESSING AND HANDLING FACILITIES	N/A
DISINFECTION EQUIPMENT (Chlorinator, Ultra-Violet, Etc.)	N/A
FILTRATION EQUIPMENT (Rapid Sand, Slow Sand, Activated Carbon, Etc.)	N/A
STRUCTURES (Buildings, Fences, Etc.)	N/A
OTHER (Laboratory Equipment, Tools, Vehicles, Standby Power Generators, Etc.)	N/A

COMPANY NAME LAKE PLEASANT SEWER COMPANY

WASTEWATER FLOWS N/A

MONTH/YEAR (Most Recent 12 Months)	NUMBER OF SERVICES	TOTAL MONTHLY SEWAGE FLOW	SEWAGE FLOW ON PEAK DAY

PROVIDE THE FOLLOWING INFORMATION AS APPLICABLE

Method Of Effluent Disposal (leach field, surface water discharge, reuse, injection wells, groundwater recharge, evaporation ponds, etc.)	N/A
Wastewater Inventory Number (all wastewater systems are assigned an inventory number)	N/A
Groundwater Permit Number	N/A
ADEQ Aquifer Protection Permit Number	N/A
ADEQ Reuse Permit Number	N/A
EPA NPDES Permit Number	N/A

STATISTICAL INFORMATION

Total number of customers _____ 0 _____

Total number of gallons treated _____ 0 _____ gallons

COMPANY NAME LAKE PLEASANT SEWER COMPANY

YEAR ENDING 12/31/2003

INCOME TAXES

For this reporting period, provide the following:

Federal Taxable Income Reported	<u>0</u>
Estimated or Actual Federal Tax Liability	<u>0</u>

State Taxable Income Reported	<u>0</u>
Estimated or Actual State Tax Liability	<u>50</u>

Amount of Grossed-Up Contributions/Advances:

Amount of Contributions/Advances	<u>0</u>
Amount of Gross-Up Tax Collected	<u>0</u>
Total Grossed-Up Contributions/Advances	<u>0</u>

Decision No. 55774 states, in part, that the utility will refund any excess gross-up funds collected at the close of the tax year when tax returns are completed. Pursuant to this Decision, if gross-up tax refunds are due to any Payer or if any gross-up tax refunds have already been made, attach the following information by Payer: name and amount of contribution/advance, the amount of gross-up tax collected, the amount of refund due to each Payer, and the date the Utility expects to make or has made the refund to the Payer.

CERTIFICATION

The undersigned hereby certifies that the Utility has refunded to Payers all gross-up tax refunds reported in the prior year's annual report. This certification is to be signed by the President or Chief Executive Officer, if a corporation; the managing general partner, if a partnership; the managing member, if a limited liability company or the sole proprietor, if a sole proprietorship.


SIGNATURE

4/12/09
DATE

DONALD R. LEO
PRINTED NAME

PRESIDENT
TITLE

COMPANY NAME LAKE PLEASANT SEWER COMPANY

YEAR ENDING 12/31/2003

PROPERTY TAXES

Amount of actual property taxes paid during Calendar Year 2003 was: \$ 0

Attach to this annual report proof (e.g. property tax bills stamped "paid in full" or copies of cancelled checks for property tax payments) of any and all property taxes paid during the calendar year.

If no property taxes paid, explain why. _____

**VERIFICATION
AND
SWORN STATEMENT**
Intrastate Revenues Only

VERIFICATION

STATE OF ARIZONA

I, THE UNDERSIGNED

OF THE

COUNTY OF (COUNTY NAME)
MARICOPA
NAME (OWNER OR OFFICIAL) TITLE
DONALD R. LEO, PRESIDENT
COMPANY NAME
LAKE PLEASANT SEWER COMPANY

DO SAY THAT THIS ANNUAL UTILITY REPORT TO THE ARIZONA CORPORATION COMMISSION

FOR THE YEAR ENDING

MONTH	DAY	YEAR
12	31	2003

HAS BEEN PREPARED UNDER MY DIRECTION, FROM THE ORIGINAL BOOKS, PAPERS AND RECORDS OF SAID UTILITY; THAT I HAVE CAREFULLY EXAMINED THE SAME, AND DECLARE THE SAME TO BE A COMPLETE AND CORRECT STATEMENT OF BUSINESS AND AFFAIRS OF SAID UTILITY FOR THE PERIOD COVERED BY THIS REPORT IN RESPECT TO EACH AND EVERY MATTER AND THING SET FORTH, TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

SWORN STATEMENT

IN ACCORDANCE WITH THE REQUIREMENT OF TITLE 40, ARTICLE 8, SECTION 40-401, ARIZONA REVISED STATUTES, IT IS HEREIN REPORTED THAT THE GROSS OPERATING REVENUE OF SAID UTILITY DERIVED FROM ARIZONA INTRASTATE UTILITY OPERATIONS DURING CALENDAR YEAR 2003 WAS:

Arizona IntraState Gross Operating Revenues Only (\$)

\$ 0

(THE AMOUNT IN BOX ABOVE
INCLUDES \$ 0
IN SALES TAXES BILLED, OR COLLECTED

****REVENUE REPORTED ON THIS PAGE MUST INCLUDE SALES TAXES BILLED OR COLLECTED. IF FOR ANY OTHER REASON, THE REVENUE REPORTED ABOVE DOES NOT AGREE WITH TOTAL OPERATING REVENUES ELSEWHERE REPORTED, ATTACH THOSE STATEMENTS THAT RECONCILE THE DIFFERENCE. (EXPLAIN IN DETAIL)**

SUBSCRIBED AND SWORN TO BEFORE ME

A NOTARY PUBLIC IN AND FOR THE COUNTY OF

THIS

12th

DAY OF



Donald R. Leo
SIGNATURE OF OWNER OR OFFICIAL
(602) 957-8181
TELEPHONE NUMBER

COUNTY NAME	
MARICOPA	
MONTH	DAY
Apr. 7	20 04

Karen L. Anderson
SIGNATURE OF NOTARY PUBLIC

MY COMMISSION EXPIRES 01/02/2008

VERIFICATION
AND
SWORN STATEMENT
RESIDENTIAL REVENUE
INTRASTATE REVENUES ONLY

VERIFICATION

STATE OF ARIZONA

I, THE UNDERSIGNED

OF THE

(COUNTY NAME) MARICOPA

NAME (OWNER OR OFFICIAL)
DONALD R. LEO

TITLE
PRESIDENT

COMPANY NAME
LAKE PLEASANT SEWER COMPANY

DO SAY THAT THIS ANNUAL UTILITY REPORT TO THE ARIZONA CORPORATION COMMISSION

FOR THE YEAR ENDING

MONTH	DAY	YEAR
<u>12</u>	<u>31</u>	<u>2003</u>

HAS BEEN PREPARED UNDER MY DIRECTION, FROM THE ORIGINAL BOOKS, PAPERS AND RECORDS OF SAID UTILITY; THAT I HAVE CAREFULLY EXAMINED THE SAME, AND DECLARE THE SAME TO BE A COMPLETE AND CORRECT STATEMENT OF BUSINESS AND AFFAIRS OF SAID UTILITY FOR THE PERIOD COVERED BY THIS REPORT IN RESPECT TO EACH AND EVERY MATTER AND THING SET FORTH, TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

SWORN STATEMENT

IN ACCORDANCE WITH THE REQUIREMENTS OF TITLE 40, ARTICLE 8, SECTION 40-401.01, ARIZONA REVISED STATUTES, IT IS HEREIN REPORTED THAT THE GROSS OPERATING REVENUE OF SAID UTILITY DERIVED FROM ARIZONA INTRASTATE UTILITY OPERATIONS RECEIVED FROM RESIDENTIAL CUSTOMERS DURING CALENDAR YEAR 2003 WAS:

ARIZONA INTRASTATE GROSS OPERATING REVENUES

\$ 0

(THE AMOUNT IN BOX AT LEFT
INCLUDES \$ 0
IN SALES TAXES BILLED, OR COLLECTED

*RESIDENTIAL REVENUE REPORTED ON THIS PAGE
MUST INCLUDE SALES TAXES BILLED.

X *Donald R. Leo*
SIGNATURE OF OWNER OR OFFICIAL

SUBSCRIBED AND SWORN TO BEFORE ME

A NOTARY PUBLIC IN AND FOR THE COUNTY OF

THIS

12th

DAY OF

(SEAL)

MY COMMISSION EXPIRES



OFFICIAL SEAL
KAREN L. ANDERSON
Notary Public - State of Arizona
MARICOPA COUNTY
My Comm. Expires Jan. 2, 2008

NOTARY PUBLIC NAME
KAREN L. ANDERSON

COUNTY NAME
MARICOPA

MONTH April | 20 04

Karen L. Anderson

SIGNATURE OF NOTARY PUBLIC



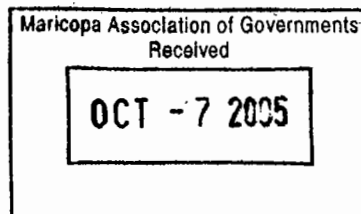
City of Peoria

Utilities Department

8401 West Monroe Street, Peoria, Arizona 85345
Phone: 623-773-7286 Fax: 623-773-7291

October 05, 2005

Lindy Bauer
Maricopa Association of Governments
302 North First Avenue, Suite 300
Phoenix, AZ 85003



Re: Estates at Lakeside
Minor Amendment to MAG 208 Water Quality Management Plan for Small
Wastewater Treatment Plant.
Proposed Operations

Dear Ms. Bauer:

Please consider this letter as supplemental information in support of the above referenced Minor Amendment. The City of Peoria anticipates that it will acquire the proposed Estates at Lakeside Wastewater Treatment Plant from the Lake Pleasant Sewer Company prior to start-up. As owner, the City of Peoria will assume responsibilities for the operations and maintenance of the facility and will be responsible for permit compliance.

If you need additional information to review this request, please contact me at 623-773-7286.

Sincerely,

A handwritten signature in black ink, appearing to read "W. Mattingly".
10-04-2005
William J. Mattingly
Deputy Utilities Director

cc: Julie A. Hoffman

APPENDIX G

OFFICIAL REQUEST / LETTER OF NO OBJECTION



FILE COPY

City of Peoria

Utilities Department

8401 West Monroe Street, Peoria, Arizona 85345

Phone: 623-773-7286 Fax: 623-773-7291

May 17, 2005

Lindy Bauer
Maricopa Association of Governments
302 North First Avenue, Suite 300
Phoenix, AZ 85003

Re: Estates at Lakeside
Minor Amendment to MAG 208 Water Quality Management Plan for Small
Wastewater Treatment Plant.

Dear Ms. Bauer:

The City of Peoria requests that Maricopa Association of Governments (MAG) initiate the 208 Small Plant Review and Approval Process to add the proposed Estates at Lakeside Wastewater Treatment Plant to the MAG 208 Plan. The Estates at Lakeside is a 166 lot development located within the Peoria City limits. The proposed 60,000 gallon per day facility will be owned and operated by the Lake Pleasant Sewer Company which is permitted by the Arizona Corporation Commission to serve the subject area. Preliminary plans and supporting technical reports were submitted to your office in April 2005.

If you need additional information to review this request, please contact me at 623-773-7286.

Sincerely,

A handwritten signature in black ink, appearing to read "William J. Mattingly", followed by the date "05-16-2005" written in a similar script.

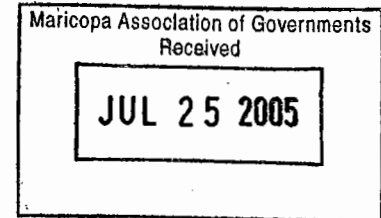
William J. Mattingly
Deputy Utilities Director

cc: Julie A. Hoffman



City of Phoenix
Water Services Department
Compliance & Regulatory Affairs Office

July 22, 2005



Ms. Lindy Bauer
Environmental Program Director
Maricopa Association of Governments
302 North 1st Avenue, Suite 300
Phoenix, Arizona 85003

Dear Ms. Bauer:

Re: MAG 208 Water Quality Management Plan Amendment – Estates at Lakeside
Wastewater Treatment Plant

The City of Phoenix has reviewed the 208 Amendment for the Estates at Lakeside Wastewater Treatment Plant due to the location of the facility within three miles of the City of Peoria – City of Phoenix boundary. This is to inform you that the City of Phoenix has no objection to the Estates at Lakeside Wastewater Treatment Plant and this amendment.

Sincerely,

A handwritten signature in cursive script that reads "Robert A. Hollander".

Robert A. Hollander, P.E.
Compliance and Regulatory Affairs Administrator

c: William Mattingly - City of Peoria
Danny Murphy



Maricopa County

Environmental Services

Water and Waste Management Division

Maricopa Association of Governments
Received

DEC 19 2005

1001 N. Central Ave., Suite 150
Phoenix, AZ 85004
Phone: (602) 506-6666
Fax: (602) 506-6925
TDD: 602 506 6704
www.maricopa.gov/envsvc

December 13, 2005

Maricopa Association of Governments
302 North 1st Avenue, Suite 300
Phoenix, AZ 85003

Attention: Ms. Lindy Bauer, Environmental Program Coordinator

Re: Lake Pleasant Sewer Company, Estates at Lakeside
Clean Water Act, MAG 208 Small Projects Review

Dear Ms. Bauer:

ESCA Environmental, Inc. submitted a proposed MAG 208 Small Plant Review and Approval Report dated June, 2005 (Revised) to Maricopa County Environmental Services Department (Department). The Facility is located south of Lake Pleasant, along the south side of Highway 74, in the southwest quarter of Section 29, Township 6N, Range 1E.

The facilities are located in the City of Peoria. The document was submitted to the Department because it is located within three miles of unincorporated areas of Maricopa County. The facility is also located within three miles of the City of Phoenix.

MCESD notes that the project will be constructed by the property owner, DLGC II, and the Lake Pleasant Sewer Company. After all regulatory approvals have been obtained, the plant will be sold to the City of Peoria under the terms of an Asset Purchase Agreement executed in December 2005.

The plant will serve two physically separated parcels of land that will be connected by utility easements. The Phase 1 development will include the treatment plant site and the Phase 2 development will follow later. Only the Phase 1 facilities are within the Certificated Area of the Lake Pleasant Sewer Company.

Based on a review of the proposed 208 MAG 208 Small Projects Review and Approval Report, the Department has determined that the proposed plant does not conflict with Maricopa County plans for the area.

Please note that the Department has not reviewed, nor approved, the design of the facilities as part of the 208 Small Projects Review. Any technical issues that remain will need to be resolved during the design phase of the project. Approval to Construct (ATC) and Approval of Construction (AOC) must be obtained from this Department prior to start of construction and startup, respectively, of all treatment, discharge, recharge, and reuse facilities, including all conveyance facilities and final end user facilities.

If you have any questions or comments, please feel free to contact Mr. Kenneth James, PE, or myself at 506-6666.

Sincerely,

Kenneth R. James P.E. for

Dale Bodiya, P.E.
Acting Manager, Water and Waste Management Division

cc: Bill Mattingly, PE, Civil Engineering Manager, City of Peoria
Eugene Cetwinski, PE, ESCA Environmental, Inc.
Utilities Division - Engineering Section, Arizona Corporation Commission
File